

**FINAL PROGRESS REPORT**

**Section 1**

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**Title Page**

**Project Title**

Nebraska Occupational Safety and Health Program

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**Award Number**

5U60OH009859

**Project Dates**

7/01/2010 - 06/30/2016

**Report Date**

09/28/2016

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#### List of Terms and Abbreviations

ABLES	Adult Blood Lead Epidemiology and Surveillance
BLL	Blood lead level
BLS	U.S. Bureau of Labor Statistics
BRFSS	Behavioral Risk Factor Surveillance System
CFOI	Census of Fatal Occupational Injuries
CS-CASH	Central States Center for Agricultural Safety and Health
CSTE	Council of State and Territorial Epidemiologists
ELR	Electronic laboratory reporting
FTE	Full-time Equivalent Worker
HDD	Hospital discharge data
MSD	Musculoskeletal Disorder
NDHHS	Nebraska Department of Health and Human Services
NIOSH	National Institute for Occupational Safety and Health
NOSHHP	Nebraska Occupational Safety and Health Program
NWCC	Workers' compensation court
OHI	Occupational Health Indicator
OSHA	Occupational Safety and Health Administration
SOII	Survey of Occupational Injuries and Illnesses
UNL	University of Nebraska – Lincoln
UNMC	University of Nebraska Medical Center
WC	Workers compensation
WestON	Western States Occupational Network

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#### Abstract

**Project Title:** Nebraska Occupational Safety and Health Program

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**Project Dates:** 7/01/2010 - 06/30/2016

#### Final Report Abstract:

The purpose of this project was to establish a fundamental occupational safety and health surveillance program for the State of Nebraska, within the Nebraska Department of Health and Human Services (NDHHS). The Nebraska Occupational Safety and Health Surveillance Program (NOSHHP) successfully developed a surveillance system to compile, analyze, and report on 20 occupational health indicators (OHIs) and other occupational injury and illness data. Calculating OHIs resulted in an increased availability of occupational injury and illness data and increased the knowledge of trends and patterns in the status worker health and safety in Nebraska. To enhance surveillance for reportable conditions potentially associated with workplace exposures, a surveillance system was developed to capture information on poisoning or illness due to work-related exposures to pesticides. Pesticide poisoning prevention information was provided to health care providers and the general public to help guide recommendations. Pesticide poisoning case data was submitted to NIOSH, which improved the multi-state SENSOR-Pesticides Program's surveillance system. NOSHHP enhanced adult blood lead surveillance in Nebraska by collaborating with the Office of Environmental Health Hazards and Indoor Air Quality. Public health lead poisoning investigations were conducted using a new investigation protocol developed by NOSHHP, and adults with elevated blood lead levels were provided with prevention information via mail. Annual adult lead data was also submitted to NIOSH. These efforts resulted in a more precise tracking system for elevated blood lead levels in adults, enhanced national lead surveillance capacity, and increased prevention information received by health care providers and workers. Project findings were disseminated to stakeholders through several means, including the NDHHS website, presentations, posters, lectures, newsletter articles, and social media. Dissemination activities lead to an increased stakeholder awareness of findings, recommendations, and prevention strategies. Outreach activities were achieved through the sharing of educational materials, participation at events, in-person training, and other channels. Education and outreach activities improved awareness of worker safety and health prevention strategies among workers and employers in Nebraska. NOSHHP assembled an occupational health surveillance advisory committee and held four in-person meetings during the project. The committee enhanced occupational health in Nebraska by identifying new priorities, evaluating approaches, and developing new stakeholder networks. NOSHHP contributed to the occupational health community by participating in regional and national meetings organized by the Council of State and Territorial Epidemiologists and the Western States Occupational Network. Annual performance reviews of the accomplishments and impacts of the program were produced annually, and an evaluation of the occupational health surveillance system was conducted. This surveillance evaluation helped NOSHHP areas of improvement to enhance the quality and usefulness of the NOSHHP data. By the end of the project period, NDHHS developed a fully operational and sustainable fundamental occupational health and safety surveillance program allowing for state-based tracking and prevention efforts aimed at reducing occupational injuries and illnesses in Nebraska.

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#### Significant and Key Findings

**Aim 1: Collect information from existing systems that capture occupational safety and health surveillance data on workplace hazards and health effects of workers, using the methods to establish occupational indicators that have been identified by the NIOSH-States Occupational Health Surveillance Work Group.**

The Nebraska Occupational Safety and Health Program (NOSHP) collected 20 occupational health indicators (OHIs) representing more than 150 measures spanning 14 years and submitted annual data to NIOSH. OHI data indicated Nebraska's occupational nonfatal injury and illness rate and fatal injury rate is higher than the national average. NOSHP conducted several data analyses and enhanced the collection of work information.

**Aim 2: Develop a surveillance system to capture occupational health data on poisoning or illness caused by exposure to agricultural or industrial chemicals and to provide information to guide recommendations for prevention.**

NOSHP developed a pesticide poisoning surveillance system and received 160 cases of pesticide poisoning between 2011 and 2013 from the Nebraska Poison Center. In 2013, Nebraska joined the multi-state consortium of NIOSH SENSOR-Pesticide Programs and submitted three years of data to NIOSH. Guidelines and prevention information were disseminated to health care providers and other stakeholders.

**Aim 3: Expand the Adult Blood Lead Epidemiology and Surveillance (ABLES) Program.**

Project staff expanded adult blood lead case surveillance by streamlining collection and management of case investigation data electronically linked with laboratory tests. During the project, NOSHP investigated 233 elevated blood lead level cases and provided prevention information to 376 adults with elevated blood lead levels. NOSHP facilitated sending four years of adult blood lead level data to the NIOSH ABLES Program.

**Aim 4: Identify and interact with the appropriate state partners, local public health agencies, and other stakeholders to get input on the priority conditions in Nebraska.**

NOSHP interacted with stakeholders to receive input and for integration of occupational health into mainstream public health. Staff participated in five internal and external workgroups and coalitions. Investigators developed a stakeholder database consisting of 187 individuals representing local public health, government agencies, non-profit organizations, and other partners.

**Aim 5: Disseminate information gained through an annual public report of the results, submission of articles to newsletters, participation in meetings, and giving lectures.**

NOSHP produced and disseminated six technical reports summarizing occupational health surveillance data. A new newsletter was created and articles were disseminated to approximately 50 stakeholders. Project findings were disseminated to stakeholders through 10 presentations, 3 lectures, 3 social media posts, and 2 posters.

**Aim 6: Conduct educational outreach, in collaboration with stakeholders, for workers and employers to address identified occupational health and safety problems, placing special emphasis on reaching underserved and high risk worker populations.**

Program findings and prevention information were shared with workers and employers directly and via cross-disseminated by our stakeholders. NOSHP developed and disseminated educational information to workers and employers using factsheets, presentations, exhibitor booths, and electronic media.

**Aim 7: Assemble an advisory committee that will meet at least yearly to develop priority conditions of special importance in Nebraska.**

Nebraska convened an occupational health advisory committee with representatives from state and federal government agencies, local public health, and non-profit organizations. Four in-person advisory committee meetings were held during the project period which were attended by approximately 15 members.

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#### **Aim 8: Participate in Council of State and Territorial Epidemiologists (CSTE) and the Western States Occupational Network (WestON) by attending meetings and conference calls.**

NOSHP participated in four annual CSTE conferences and four annual WestON meetings to share and learn best surveillance practices, emerging occupational health issues, and prevention strategies. Staff attended several trainings, webinars, and other meetings to learn best practices and to increase skill sets of investigators.

#### **Aim 9: Prepare an annual performance review of the accomplishments and impact of the surveillance program.**

NOSHP staff produced five annual performance reviews and conducted a final occupational injury and illness surveillance system evaluation using CDC's surveillance system evaluation guidelines.

### **Translation of Findings**

More than a decade's worth of occupational health indicators (OHI) and surveillance data were disseminated via reports and electronic media to safety organizations, regulatory agencies, and local public health departments. These groups work directly with employees and employers and they have the ability to use program findings to prioritize and implement activities aimed at reducing the incidence of occupational injury and illness. OHI data were shared with the occupational health community via presentations, websites, and via CSTE's multi-state online OHI query system. Adult blood lead level data were submitted to NIOSH and were included in CDC's first-ever MMWR Summary of Notifiable Noninfectious Diseases. If used, these findings can be applied to future planning activities to determine where interventions are most needed. Poisoning prevention strategies were disseminated to workers via mail and public service announcements, and medical guidelines were shared with health care providers over the phone, mail, and via health alerts. This educational information can be used by these groups to reduce occupational poisoning risks and improve workplace practices. During the project, NOSHP identified and recommended several specific strategies aimed at reducing occupational injuries and illnesses. During an outbreak of avian influenza among poultry, NOSHP issued recommendations for personal protective equipment to poultry workers which resulted in an increase in PPE use and a decrease in exposure. Through presentations, outreach, and stakeholder meetings, NOSHP used project findings to issue recommendations aimed at preventing injuries in animal slaughtering, heat illnesses, construction falls, agricultural injuries, silicosis among countertop workers, and other priority conditions in Nebraska.

### **Research Outcomes and Impact**

The Nebraska Occupational Safety and Health Program (NOSHP) developed and implemented an occupational health surveillance program for the state of Nebraska. The project improved occupational health and safety in Nebraska by building the capacity to track and prevent occupational injuries and illnesses. The increased availability of occupational health data and the dissemination of findings has the potential to impact stakeholders' outreach and intervention strategies (potential outcome). Recommendations by NOSHP resulted in new regulations and policies that increased the collection of work information among state surveillance systems (intermediate outcome). NOSHP enhanced surveillance of occupational poisonings and contributed to NIOSH poisoning surveillance programs for lead and pesticides, which resulted in an improved national surveillance system for occupational poisonings (intermediate outcome). By building new stakeholder networks and maintaining an advisory committee, NOSHP partners are better positioned to effectively set priorities, identify emerging issues, and increase surveillance data quality (potential outcome). For the first time ever, occupational health surveillance data were incorporated into other state-based public health initiatives, which established a basic integration of occupational health into overall public health within Nebraska (intermediate outcome). NOSHP conducted educational outreach and communicated prevention information to workers, employers, and other stakeholders. This information can be used by our stakeholders to prevent exposures and reduce the incidence of occupational injuries and illnesses in Nebraska.

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#### Background

The NIOSH-States Occupational Health Surveillance Work Group was convened in 1998 by the National Institute for Occupational Safety and Health (NIOSH) and the Council of State and Territorial Epidemiologists (CSTE) to make recommendations to NIOSH concerning state-based surveillance activities. The Work Group recommended that surveillance planning should be outcome driven and identified surveillance issues that cut across specific conditions. Occupational health indicators were developed to provide information about a population's health status with respect to work-related injuries and illnesses or factors that may affect health in the workplace.

In 2010, NDHHS received state-based occupational health surveillance funding from NIOSH. Before this cooperative agreement was awarded, NDHHS did not have a dedicated occupational safety and health surveillance program to address occupational safety and health issues in Nebraska. Nebraska participated in a pilot project in 2004 to collect baseline information on the occupational indicators selected by the Work Group. According to published results from that project, Nebraska workers were identified to have higher than national average rates of fatal and non-fatal injuries, amputations, burns, and pesticide poisonings. Nebraska was also found to have higher than national averages for percentage of workers aged 16–19 years and workers employed in industries and occupations at high risk for injury, illness, and death.

The purpose of this project was to establish a “Fundamental” occupational safety and health surveillance program for the State of Nebraska, within the Nebraska Department of Health and Human Services (NDHHS), the state agency which has general supervision, control, and primary responsibility over matters relating to public health (Neb. Rev. Stat. §81-601). This program collected and analyzed surveillance data from existing public information and data sources available within NDHHS for up to 19 occupational safety and health indicators which have been identified by the NIOSH-States Occupational Surveillance Work Group. To further enhance surveillance for reportable conditions potentially associated with workplace exposures, we developed a surveillance system to capture information on poisoning or illness due to exposure to agricultural or industrial chemicals and to provide information to guide recommendations for prevention. We also collaborated with the Nebraska Office of Environmental Health Hazards and Indoor Air Unit to expand the Adult Blood Lead Epidemiology and Surveillance (ABLES) Program to track elevated blood lead results in adults, enhance surveillance, and provide a higher level of education and training for occupational groups and industries at high risk for lead exposure. An advisory committee of stakeholders was convened to provide input to direct activities, and educational materials were disseminated to improve worker safety and health awareness in Nebraska. Reports were also generated to share results of data analyses.

#### Specific Aims

Aim 1: Collect information from existing systems that capture occupational safety and health surveillance data on workplace hazards and health effects of workers, using the methods to establish occupational indicators that have been identified by the NIOSH-States Occupational Health Surveillance Work Group.

Aim 2: Develop a surveillance system to capture occupational health data on poisoning or illness caused by exposure to agricultural or industrial chemicals and to provide information to guide recommendations for prevention.

Aim 3: Expand the Adult Blood Lead Epidemiology and Surveillance (ABLES) Program.

Aim 4: Identify and interact with the appropriate state partners, local public health agencies, and other stakeholders to get input on the priority conditions in Nebraska.

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Aim 5: Disseminate information gained through an annual public report of the results, submission of articles to newsletters, participation in meetings, and giving lecture.

Aim 6: Conduct educational outreach, in collaboration with stakeholders, for workers and employers to address identified occupational health and safety problems, placing special emphasis on reaching underserved and high risk worker populations.

Aim 7: Assemble an advisory committee that will meet at least yearly to develop priority conditions of special importance in Nebraska.

Aim 8: Participate in Council of State and Territorial Epidemiologists (CSTE) and the Western States Occupational Network (WestON) by attending meetings and conference calls.

Aim 9: Prepare an annual performance review of the accomplishments and impacts of the surveillance program.

### Methods

**Aim 1: Collect information from existing systems that capture occupational safety and health surveillance data on workplace hazards and health effects of workers, using the methods to establish occupational indicators that have been identified by the NIOSH-States Occupational Health Surveillance Work Group.**

A primary activity of the Nebraska Occupational Safety and Health Program (NOSHP) was to develop the fundamental capacity to conduct occupational health surveillance for the state of Nebraska. NOSHP activities under Aim 1 involved identifying and working with data providers to collect information on occupational injuries, illnesses, and hazards. Most of this work involved collecting occupational health indicators, however NOSHP also conducted several additional data analysis activities to assess workplace hazards and health effects of workers. These analyses incorporated methodologies such as descriptive epidemiology, Geographic Information System mapping, and data linkage.

In 1998, the NIOSH-States Occupational Health Surveillance Work Group developed the framework for collecting occupational health indicators to provide information about a population's health status with respect to work-related injuries and illnesses or factors that may affect health in the workplace. The indicators reflect measures of health (i.e. work-related illness or injury) or factors associated with health (i.e. workplace exposures, hazards, or interventions). To collect occupational health indicators, NOSHP used established methods described in CSTE's "Guide for Tracking Occupational Health Conditions and Their Determinants." The Occupational Health Indicator guidance document is available for download on the CSTE website at <http://www.cste.org/group/OHIndicators> and contains more information about each indicator, including data sources, methodologies, limitations, and recommendations. We worked with several internal and external data sources to collect occupational safety and health surveillance information on workplace hazards and health effects of workers, including:

#### *Internal Data Sources*

- Hospital Discharge Data
- Nebraska Trauma Registry
- Nebraska Cancer Registry
- Adult Blood Lead Epidemiology and Surveillance (ABLES) Program
- Nebraska Workers Compensation Claims data
- Death certificate data

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- Behavioral Risk Factor Surveillance System (BRFSS)

#### *External Data Sources*

- U.S. Bureau of Labor Statistics
  - BLS Survey of Occupational Injuries and Illnesses (SOII)
  - Geographic Profile of Employment and Unemployment
  - Current Population Survey micro-data (<http://cps.ipums.org/cps/>)
  - Census of Fatal Occupational Injuries (<http://www.bls.gov/iif/home.htm#tables>)
- National Academy of Social Insurance (NASI)
  - Estimate of workers covered by Workers' Compensation ([www.nasi.org](http://www.nasi.org)) U.S.
- U.S. Bureau of the Census
  - State population estimates
  - Census County Business Patterns
  - U.S. Standard population
- Poison Control Center
- Occupational health professional organization membership directories
- OSHA
  - Annual reports of total inspections conducted and the number of workers covered by these inspections

NOSH investigators also conducted several data collection and epidemiological analysis projects for priority conditions in the state using various data sources. We also worked with other surveillance programs to include work information in other surveillance systems. These analyses and data projects included but were not limited to:

- Assessing worksite, health, safety, and wellness using a worksite wellness survey
- Collecting industry and occupation information in BRFSS data
- Collecting work-related information in other NDHHS surveillance systems
- Assessing work-related injuries in Nebraska's meatpacking industry
- Work-related fall injuries in Nebraska

#### **Aim 2: Develop a surveillance system to capture occupational health data on poisoning or illness caused by exposure to agricultural or industrial chemicals and to provide information to guide recommendations for prevention.**

In Nebraska, state regulations require health care providers and laboratories to report to public health authorities within seven days of the detection or diagnosis of poisoning or illness due to exposure to agricultural chemicals (herbicides, pesticides, and fertilizers), industrial chemicals or mercury. Before the project began, no established surveillance system was in place to track these conditions and no data were available to establish the actual incidence of such poisonings that occur in Nebraska, although preliminary occupational health indicator data suggested substantially higher pesticide poisoning incidence rates compared with national rates. When Nebraska participated as a pilot site to collect indicator data in 2003, the estimated incidence rate of acute work-related pesticide poisonings per 100,000 workers was 9.0, over 4 times higher than the national average of 2.1 per 100,000 workers reported for the same year.

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Activities under Aim 2 involved building the capacity to develop a surveillance system to capture occupational poisonings and exposures to agricultural chemicals, primarily pesticides. NOSHP worked with the Nebraska Regional Poison Center to receive case reports for all occupational pesticide illnesses via fax and email. Throughout the project, other data sources were added to the surveillance system, including case reports from workers' compensation claims, hospital discharge data, electronic laboratory reports, and syndromic surveillance data. Once received by the NOSHP, cases were entered into the NIOSH-developed database called SPIDER. At the end of the project, NOSHP worked with the Nebraska Regional Poison Center and NDHHS IT staff to develop the build technical capacity to receive near real-time electronic pesticide illness cases using the software called ToxiTrack. NOSHP developed a standardized form for providers to report all pertinent information associated with each individual case, and a pesticide poisoning surveillance work plan was developed. Additionally, we worked with data partners to receive pesticide illness data and conducted epidemiological analyses to assess this health event in Nebraska.

Activities under Aim 2 also included disseminating pesticide poisoning prevention information. During the project period, NOSHP communicated medical guidance information to health care providers via the Nebraska Health Alert Network. Investigation staff also disseminated poisoning prevention information via presentations to stakeholders, newsletters, electronic media, and public service announcements.

#### **Aim 3: Expand the Adult Blood Lead Epidemiology and Surveillance (ABLES) Program.**

The approach to Aim 3 involved improving how Nebraska tracks and responds to elevated blood lead levels (EBLL) among adults. In Nebraska, state regulations require that all tests for blood lead be reported to public health authorities. Before the project period began, the Nebraska Office of Environmental Health Hazards and Indoor Air Quality maintained a database of all adult blood lead test results received. However, they did not conduct outreach, analyze data, or investigate EBLLs to determine the source of the lead. NOSHP worked closely with the Office of Environmental Health Hazards and Indoor Air Quality to develop capacity to conduct expanded investigations and provide prevention information to workers with EBLLs.

Nebraska has implemented the National Electronic Disease Surveillance System (NEDSS) and blood lead tests are submitted to this system maintained by NDHHS via electronic laboratory reporting. The NEDSS data system provides a convenient, secure location for the storage of laboratory reports. Automated electronic laboratory reporting (ELR) provides an efficient method for tests to be reported to public health by decreasing human error in transmitting elevated blood lead tests as described in the indicator section of this plan. To enhance investigation capacity, we built an electronic case investigation form in NEDSS that electronically. This ensured investigation data, such as occupation and employer, is electronically linked to the patients' blood lead testing history. During the project period, NOSHP conducted a data analysis of blood lead levels in adults for years 2008 to 2012 and conducted a data linkage project to improve data completeness of demographic data among cases.

#### **Aim 4: Identify and interact with the appropriate state partners, local public health agencies, and other stakeholders to get input on the priority conditions in Nebraska.**

Identifying a network of stakeholders was an important resource to help our program prioritize projects, identify emerging issues, and integrate occupational health into mainstream public health. To achieve Aim 4, NOSHP identified and interacted with several stakeholders and organizations. Activities involved holding initial "meet and greet" meetings with local, state, and federal agencies, as well as non-profit worker safety and health organizations. We also participated in several internal and external work group and committees. Stakeholders we interacted with included:

- Local Health Departments

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- Universities
- NIOSH-Funded Centers
- Safety Organizations
- Poison Centers
- State Agencies
- Federal Agencies
- Advocacy groups
- Internal public health programs

#### **Aim 5: Disseminate information gained through an annual public report of the results, submission of articles to newsletters, participation in meetings, and giving lectures.**

Investigators disseminated information gained through the program to stakeholders, including state and local public health and labor officials, industries, workers, and the public. Methods of communication included the Nebraska Department of Health and Human Services website, presentations, posters, lectures, newsletter articles, and the social media. An occupational safety and health web page was built and displayed on the Nebraska Department of Health and Human Services (NDHHS) website. Program findings, reports, and resources for workers, employers, and health professionals were included on this site. Annual reports were prepared and were posted on NDHHS website and distributed to stakeholders, policy makers, and other interested parties. The reports contained basic demographic data of Nebraska's workforce, trends over time, and analysis of the occupational health indicators. Results and recommendations produced through data analysis and surveillance activities were submitted to stakeholders via email. NOSHP also developed an email-based newsletter called *Occupational Health Watch*, which was used to disseminate findings. NOSHP staff also shared program findings through the NIOSH State-based Occupational Health Surveillance Clearinghouse.

#### **Aim 6: Conduct educational outreach, in collaboration with stakeholders, for workers and employers to address identified occupational health and safety problems, placing special emphasis on reaching underserved and high risk worker populations.**

NOSHP identified and interacted with several new occupational health stakeholders. These relationships were used to enhance education and outreach activities to address occupational health and safety issues. Outreach during the project included educating high risk contracting workers on silicosis hazards, conducting in-person outreach to workers at events, educating high risk workers on pesticide exposure prevention, and sharing prevention information through factsheets and educational materials developed by NOSHP and other public health programs.

#### **Aim 7: Assemble an advisory committee that will meet at least yearly to develop priority conditions of special importance in Nebraska.**

The Occupational Safety and Health Surveillance Program modeled its advisory committee off the Nebraska Injury Prevention Advisory Committee. The Nebraska Occupational Safety and Health Surveillance Program invited several stakeholders to participate in the committee, including representatives from the local health departments, the Nebraska Injury Prevention Program, Department of Labor, the Regional Poison Center, and the Nebraska Department of Health and Human Services Nebraska Environmental Health Hazards and Indoor Air Unit and Office of Minority Health and Health Equity. The advisory committee meetings were held in person and consisted of an introduction to the program, occupational indicators data, and emerging issues. The committee was given the opportunity to discuss and comment on the indicators and how they should be prioritized. Subsequent meetings

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were aimed at reaching a consensus on priority indicators and providing input into interventions to address occupational health priorities.

Initial proposed topics and questions for the advisory committee included:

- Present occupational indicator results from Nebraska, other states, and the U.S. to the group.
- Discuss occupational indicators and answer questions on methods and indicator meaning.
- Rank importance of indicators for intervention in Nebraska.
- Seek feedback on meaning of the indicators.

#### **Aim 8: Participate in Council of State and Territorial Epidemiologists (CSTE) and the Western States Occupational Network (WestON) by attending meetings and conference calls.**

The PI and Program Manager were actively engaged in the Council of State and Territorial Epidemiologists (CSTE) activating, including attending meetings, conference calls, and participating in workgroups. The Program Manager also participated in the Western States Occupational Health Network (WestON) by attending meetings and subscribing to list serves. CSTE and WestON gave NOSHP an opportunity to disseminate information and learn best practices from other states particularly those that might share similar populations, exposures, occupational risks, and other factors associated with occupational illnesses. We also learned best practices by participating in trainings and webinars organized by CSTE, WestON, and other organizations. NOSHP staff also participated in several other meetings and conferences related to occupational health and public health.

#### **Aim 9: Prepare an annual performance review of the accomplishments and impacts of the surveillance program**

The Program Manager was responsible for performing an annual performance review of the accomplishments and impact of the program. This review included a summary of outputs and outcomes (potential, intermediate, and end). In addition, we conducted an evaluation of the occupational health surveillance system. The goal of this evaluation was to identify areas of improvement to enhance the quality and usefulness of the NOSHP data. A process evaluation was designed, which described and assessed whether the processes are implemented as intended. Process evaluation examines a system's operation at each stage, such as from whom it collects data and how, what information is shared with the public and how. The four data systems selected for this brief evaluation were based on its importance to NOSHP for conducting routine OH surveillance activities.

The recommendations outlined in CDC and other surveillance system evaluation guidelines were adopted to design a process evaluation of four systems – workers' compensation claims (WC claims), hospital discharge data (HDD), BLS Survey of Occupational Injuries and Illnesses (SOII), and the BLS Census of Fatal Occupational Injuries (CFOI). The evaluation team reviewed existing documents, and conducted meetings with users of data sources like hospital discharge data at NDHHS to obtain information on data sources. The brief evaluation selected 7 key systems attributes for evaluating data sources, which included using the methods described in "MMWR Recommendations and Reports. Updated Guidelines for Evaluating Public Health Surveillance Systems. July 27, 2001: 50(RR13); 1-35". The attributes included:

- Acceptability
- Data quality
- Flexibility
- Representativeness
- Simplicity

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## Results

**Aim 1: Collect information from existing systems that capture occupational safety and health surveillance data on workplace hazards and health effects of workers, using the methods to establish occupational indicators that have been identified by the NIOSH-States Occupational Health Surveillance Work Group.**

### OCCUPATIONAL HEALTH INDICATORS

NOSHP successfully established an occupational health surveillance program and developed fundamental occupational health surveillance capacity using CSTE-developed occupational health indicators (OHIs). NOSHP compiled 22 OHIs, representing more than 150 individual measures spanning 13 years from 2000 to 2013. Each project year, OHIs were submitted to NIOSH and CSTE by the required due date of June 30. By the end of the project period, investigators converted the Nebraska OHI data spreadsheet files into an OHI database, which now allows for OHIs to be analyzed in statistical software, such as SAS. Trends of rates and numbers were analyzed each year and summarized in a report.

Occupational Health Indicator data for years 2007 to 2013 for Nebraska are provided in Appendix A. Employment demographic data show important changes in Nebraska's employed population. The total number of employed persons in Nebraska increased to 988,000 in 2013, and increase of 51,000 workers since 2009. The proportion of Nebraska's employed population aged 65 years or older increased to 7.2% in 2013 from 5.1% in 2009. The proportion of Nebraska's Hispanic employed population increased to 9.8% in 2013 from 7.4% in 2009. Nearly a quarter of Nebraska's employed population works in the Education and Health Services industry super-sector, and more than 1 in 5 are employed in Professional and Related Occupations.

In 2013, 39 fatal work-related injuries occurred in Nebraska, and an estimated 24,700 nonfatal work-related injuries and illnesses were reported by Nebraska private sector employers. Nebraska continues to have a higher rate of fatal work-related injuries compared to national average. Rates of nonfatal work-related injuries and illnesses were also higher compared to the United States, however nonfatal injury and illness rate are decreasing. Rates that declined included the rate of all pneumoconiosis hospitalizations and the rate of work-related musculoskeletal disorders of the back. Nebraska's work-related pesticide poisoning rate decreased compared to 2009, but the rate was more than twice the national average rate in 2013.

Occupational health indicator data from 2013 also show that when compared to the U.S., Nebraska had a higher rate of work-related musculoskeletal disorders reported by employers, rate of acute work-related pesticide poisonings reported to Poison Control Centers, percent of workers employed in industries with high risk for occupational morbidity, and percent of workers employed in industries and occupations with high risk for occupational mortality.

### LIMITATIONS

For OHI data, there is a lag time of at least 3 years using the current CSTE guidelines. Additionally, data reported are dependent on data release schedules by other data collectors and may be revised by Nebraska DHHS or other external data providers. Data collection methods can vary between years and between states, and data for the United States might not include data from all 50 states. These differences may limit direct comparisons between years and between Nebraska and national data for some indicators. There are limitations and considerations for the data sources used for each OHI, which are not described in detail in this report which but are described in the CSTE Occupational Health Indicator guidance document available for download at <http://www.cste.org/group/OHIndicators>. It is important to note that OHI data do not necessarily capture the full

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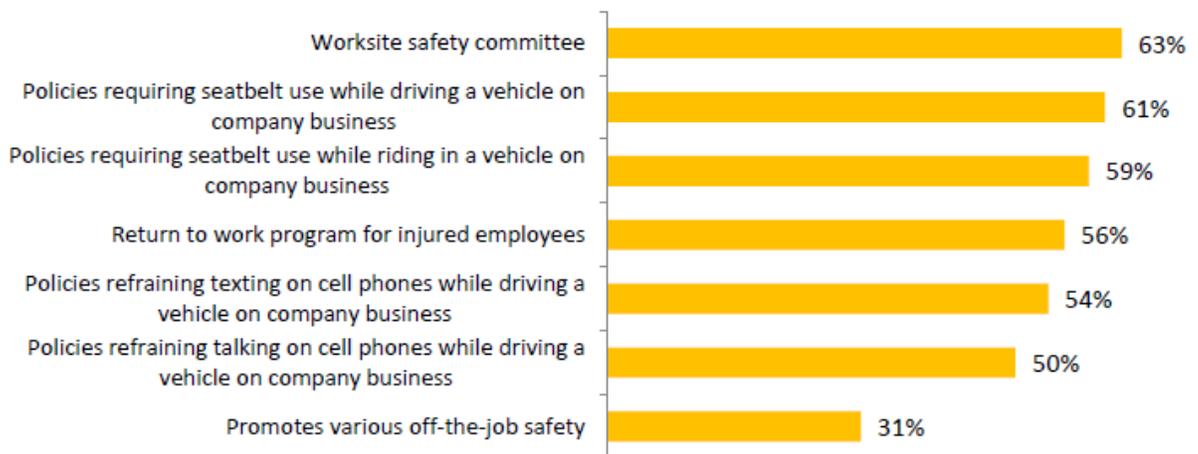
spectrum of occupational illnesses and injuries, and some indicators are not shown. Other factors should be considered in interpretation of this data, including:

- Underreporting of occupational injuries and illnesses by employees and employers;
- Inadequate recognition of occupational injuries and illnesses by health care providers;
- Difficulties in attributing diseases with long latency from time of exposure to disease manifestation and/or from multifactorial causes (e.g., silicosis, lung cancer);
- Possible exclusion of at-risk populations from surveillance (e.g., self-employed, military);
- Misclassification and variations in coding the causes of injury, illness or death;
- Differences in underlying populations at risk (“denominators”).

#### ASSESSING WORKSITE, HEALTH, SAFETY, AND WELLNESS USING A WORKSITE WELLNESS SURVEY

The Nebraska Worksite Wellness Survey was conducted in 2013 to provide information on worksite wellness policies and practices being implemented in businesses across the state. This information identified areas of need related to developing a comprehensive worksite wellness program for Nebraska businesses. A total of 582 small businesses, 510 medium businesses and 260 large businesses participated in the 2013 survey, with a total response rate of 42.1%. Respondents represented a wide variety of industry sectors across the state. NOSHP worked alongside the NDHHS Injury Prevention Program to add 7 additional questions to the survey on employee safety. We found sixty-three (63%) percent of worksites in 2013 reported having a worksite safety committee. Sixty percent (60%) of worksites had a policy that requires employees to wear a seatbelt while driving or riding in a vehicle on company business. Fifty percent (50%) of worksites had a policy that prohibited talking on cellular phones while driving a vehicle on duty, an increase from forty-two percent (42%) in 2010. Fifty-four percent (54%) of worksites had a policy that prohibits texting on cellular phones while driving a vehicle on duty.

**FIGURE 1. PERCENT OF NEBRASKA WORKSITES WITH POLICIES CONCERNING DRIVING SAFETY AND INJURY, 2013**



#### COLLECTING INDUSTRY AND OCCUPATION INFORMATION IN BRFSS DATA

The Behavioral Risk Factor Surveillance System (BRFSS) is the premier system of health-related telephone surveys that collect state data about U.S. residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services. NOSHP worked with the Nebraska BRFSS program to include industry and occupation questions on the surveys for years 2012, 2013, and 2014. In these three years, a total of 33,796 state residents were asked to report their industry and occupation (Table 1). Having industry and occupation allowed us to assess differences in health behaviors and risk factors between workers with different jobs and workplaces. For

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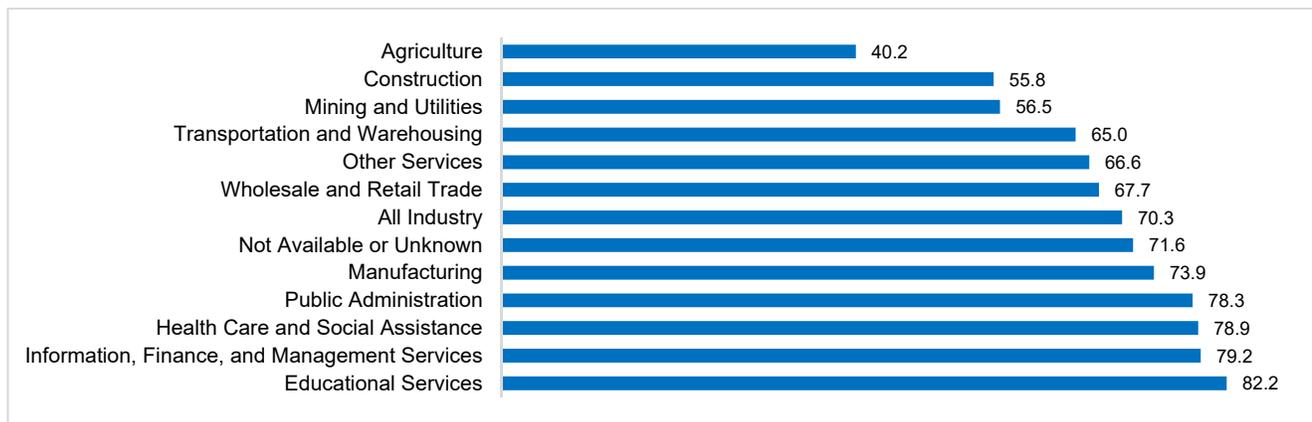
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example, Figures 3 and 4 show the distribution of Nebraska residents aged 18 years and older that reported always wearing a seatbelt when driving or riding in a car by industry and occupation.

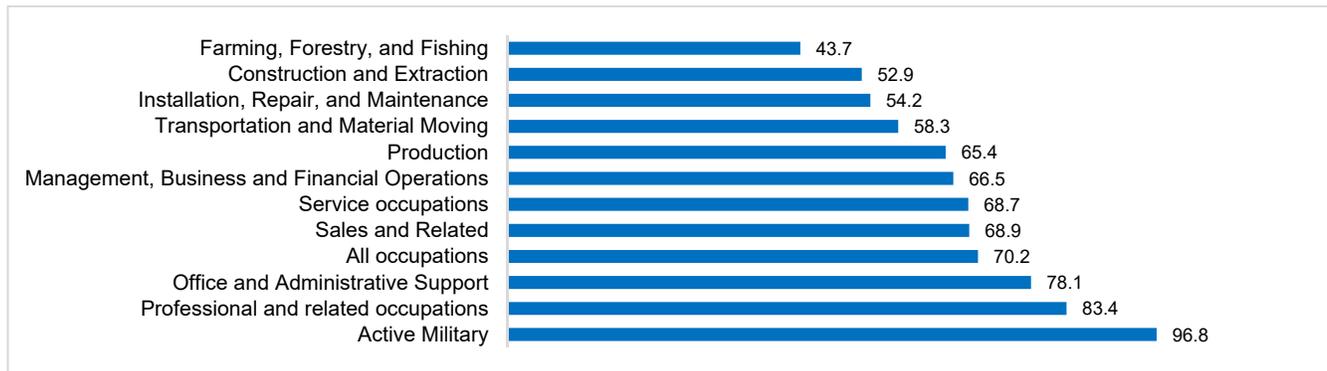
**TABLE 1. NUMBER OF RESIDENTS ASKED THEIR INDUSTRY AND OCCUPATION ON THE NEBRASKA BRFS**

Year	Employed (Asked Industry & Occupation)	Non-employed (Not asked Industry & Occupation)
2012	11,041	8,086
2013	9,793	7,229
2014	12,962	9,296
<b>Total</b>	<b>33,796</b>	<b>24,611</b>

**FIGURE 2. WEIGHTED ESTIMATED PERCENT OF NEBRASKA RESIDENTS AGED 18 YEARS AND OLDER THAT REPORT ALWAYS WEARING A SEATBELT WHEN DRIVING OR RIDING IN A CAR, BY INDUSTRY SECTOR, BRFS 2012-2014**



**FIGURE 3. WEIGHTED ESTIMATED PERCENT OF NEBRASKA RESIDENTS AGED 18 YEARS AND OLDER THAT REPORT ALWAYS WEARING A SEATBELT WHEN DRIVING OR RIDING IN A CAR, BY OCCUPATION GROUP, BRFS 2012-2014**



### COLLECTING WORK-RELATED INFORMATION IN OTHER SURVEILLANCE SYSTEMS

NOSHP held meetings with the Nebraska DHHS Emergency Medical Services (EMS) Program to discuss methods to improve collection of pre-hospital ambulance data collected by EMS personnel. NOSHP was successful in changing the work-relatedness variable from “optional” to “mandatory” for the Nebraska EMS Information System Version

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3. NOSHP also worked with the Nebraska DHHS Syndromic Surveillance Program to incorporate two new data elements for inpatient hospitals. New Nebraska syndromic surveillance regulations are now in place that require inpatient hospitals to report the patient's occupation, industry, and employment indicators if recorded. The addition of work-related data elements in EMS and syndromic surveillance data surveillance systems will enable future analysis of the magnitude and trends of occupational injuries and illnesses in Nebraska.

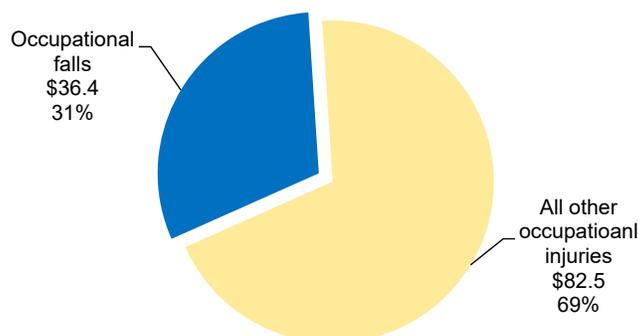
#### ASSESSING WORKER COMPENSATION CLAIMS IN NEBRASKA'S MEATPACKING INDUSTRY

Nebraska workers' compensation claims data for animal slaughtering and processing industry, also referred as the meatpacking industry, were analyzed for injuries that occurred between 2008 and 2012. We evaluated demographic and injury related risk factors that contributed to the severity of injury such as work shift, occupation, job experience, and employer size. There were 9,338 injuries reported to workers' compensation and the majority occurred in 2009 (2,181, 23.4%). The majority of injuries were among workers aged 25 to 44 (50.4%) and within two years of employment (51.1%). Upper extremities were the most frequently injured parts of body injured (56.1%), and repetitive strain injuries were associated with 40.1% of the claims. Injury severity was associated with working at a large facility with 1,000 employees or more, working between 7am and 3pm or on the weekend, being employed out of the county of residence, and involvement of multiple body parts. To reduce the severity of work-related injuries, safety education programs should target workers at high risk groups such as workers younger than 25 years of age, workers who worked second, third shift or on weekends, those who work for large employers, and those who work out of their county of residence.

#### WORK-RELATED FALL INJURIES IN NEBRASKA

We assessed occupational injuries due to falls using workers' compensation claims data, hospital discharge data, and data from the Census of Fatal Injuries. We found fall, slip, or trip injuries represented 22% of workers' compensation claims from 2007 to 2011. In 2011, the industry sector with the most fall, slip, or trip claims was health care and social assistance, which accounted for 17.4% of claims. Fall injuries accounted for 20% of occupational injury hospital discharges and were the most frequent cause of occupational injury resulting in a hospital discharge. From 2007 to 2011, occupational fall injuries resulting in hospital care accounted for \$36.4 million in hospital charges, which was 31% of all occupational injury hospital charges (Figure 1). From 2007 to 2011, 39 fatal occupational injuries were due to falls, slips, or trips, which represented approximately 15% of all fatal occupational injuries. Nearly 90% of fatal injuries occurred among males, and more than a quarter occurred in the construction industry sector.

**FIGURE 4. DISTRIBUTION OF TOTAL HOSPITAL CHARGES DUE TO OCCUPATIONAL FALL INJURIES VS. ALL OTHER OCCUPATIONAL INJURIES, NEBRASKA, 2007–2011**



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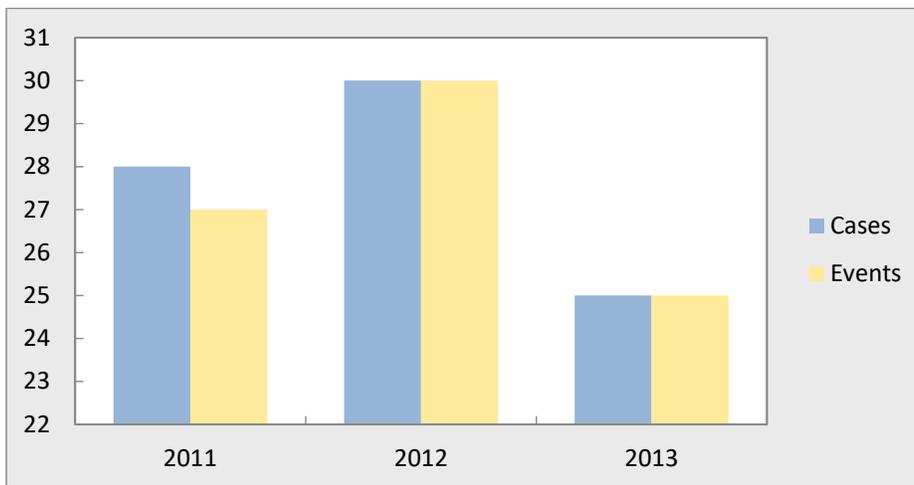
**Aim 2: Develop a surveillance system to capture occupational health data on poisoning or illness caused by exposure to agricultural or industrial chemicals and to provide information to guide recommendations for prevention.**

#### ESTABLISHING A PESTICIDE ILLNESS AND EXPOSURE SURVEILLANCE PROGRAM

Nebraska successfully achieved Aim 2 by developing the capacity to conduct pesticide illness and exposure surveillance. We received 160 total pesticide illness, injury, and exposure case reports from the Nebraska Poison Center during 2011 to 2013. In 2013, Nebraska also joined the multi-state NIOSH SENSOR-Pesticides Program. De-identified pesticide poisoning data for years 2011, 2012, and 2013 were provided to the NIOSH SENSOR-Pesticides Program.

During 2011 and 2013, we identified 83 occupational pesticide illness cases. Males represented more than three-fourths (78%) of cases, and half of cases were among workers aged 20-29 years old. The pesticide types most commonly attributed to occupational pesticide illness cases were disinfectants (23%), insecticides (21%) and herbicides (20%). Out of the 83 cases, the majority were low severity (80%), while 13% were moderate severity, and 1% were high severity. The most frequent contributing factor to exposure was that people were in the treated area during application (13%), and the most frequent location of exposure was farms (29%).

**FIGURE 5. NUMBER OF PESTICIDE ILLNESS CASES AND EVENTS RECEIVED BY THE NEBRASKA PESTICIDE POISONING SURVEILLANCE PROGRAM, 2011-2013.**



#### ASSESSMENT OF PESTICIDE POISONING HOSPITALIZATIONS

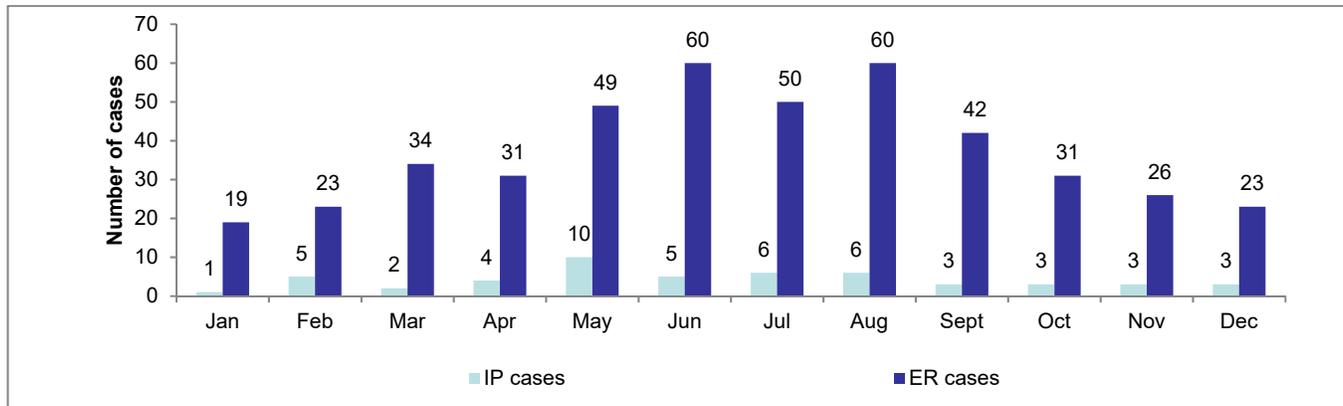
We conducted a descriptive data analysis on pesticide poisoning cases using hospital discharge data and aggregate data from the Nebraska Poison Center. Inpatient hospitalizations (IP) and emergency department cases (ED) from the hospital discharge data were obtained from the Nebraska Hospital Association from 2000–2009 and were identified based on an E-Code of E861.4 or E863.0-E863.9; patients of any age were included. Descriptive analysis was conducted on the following variables: date of poisoning, pesticide class, gender, age, and zip code. There were 499 cases of pesticide poisoning in the HDD from 2000–2009: 51 IP (10.2%) and 448 ER visits. 480 patients were Nebraska residents (96.2%); 2 IP and 38 ER patients reported Workers' Compensation as the primary payer. Thirty-three IP patients were male (64.7%) and 18 were female, while 239 ER patients were male (53.3%) and 209 were female. Patients ranged from 0 or <1 to 92 years old; 5 IP (9.8%) and 230 ER patients (51.3%) were less than 16 years old. The average age of IP patients was 43.1 years and 20.9 years for ER patients. Thirty-eight (74.5%) of the IP hospitalizations also had an ER visit. The average charge for IP patients was \$9,103

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(range: \$2,178-\$92,183) and \$523 (range: \$25-\$8,372) for ER patients. Seasonality of pesticide poisoning cases is shown in Figure 6.

**FIGURE 6. SEASONALITY OF PESTICIDE POISONING CASES FROM HDD, 2000–2009**



### DISSEMINATING POISONING RECOMMENDATIONS TO HEALTH CARE PROVIDERS

During the project period, NOSHP disseminated prevention and medical guidance information through two health advisories sent to health care providers using the Nebraska Health Alert Network, which allows timely and efficient communication targeted at the majority of providers in the state. The first health advisory related to bedbug misuse and was submitted to all primary care providers, local health departments, and emergency rooms in Nebraska. The second health advisory provided health care providers information on pesticide poisoning management guidelines and notified them to monitor patients for signs and symptoms of pesticide illness or injury and to report all cases of pesticide-related poisonings. This advisory was sent to all primary care providers, emergency rooms, urgent care providers, and local health departments.

**TABLE 2. NEBRASKA HEALTH ALERT NETWORK ADVISORIES ISSUED FOR PESTICIDES**

Date	Title	Audience	URL
11/2012	Health Concerns about Misuse of Pesticides for Bed Bug Control	Primary care providers, ERs, and local health department	<a href="http://dhhs.ne.gov/publichealth/han%20Documents/Advisory112812.pdf">http://dhhs.ne.gov/publichealth/han%20Documents/Advisory112812.pdf</a>
6/2014	Recognition and Management of Pesticide Poisoning	Primary care providers, ERs, urgent care, and local health department	<a href="http://dhhs.ne.gov/publichealth/han%20Documents/ADVISORY062014.pdf">http://dhhs.ne.gov/publichealth/han%20Documents/ADVISORY062014.pdf</a>

### Aim 3: Expand the Adult Blood Lead Epidemiology and Surveillance (ABLES) Program.

#### ENHANCING ADULT BLOOD LEAD LEVEL INVESTIGATIONS

NOSHP was successful in enhancing Nebraska’s capacity to conduct adult blood lead level surveillance. First, we built a public health investigation data collection form within the National Electronic Disease Surveillance System (NEDSS). The form, shown in Appendix B, allows investigators to collect exposure and worker information that is electronically linked with the blood lead level laboratory information. Investigators used this new data collection form to conduct a total of 233 new public health investigations for adults with blood lead levels above 10 mcg/dL (Table 3). During these investigations, NOSHP contacted the patient’s health care provider by phone and fax to provide medical management guidelines to ensure proper medical care and follow-up testing was conducted.

**TABLE 3. ACTIVITIES RELATED TO ADULT BLOOD LEAD SURVEILLANCE IN NEBRASKA BY FISCAL YEAR**

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	Budget Period (Fiscal Year)					Total
	FY2011	FY2012	FY2013	FY2014	FY2015	
Number of EBLs cases sent letters and prevention information	14	46	60	112	144	376
Number of expanded adult EBLL investigations conducted	0	0	2	112	119	233
Submission activities to NIOSH ABLES Program	CY2010 data submitted	CY2011 data submitted	CY2012 data submitted	CY2013 data submitted	CY2014 data prepared	

#### **PROVIDING LEAD POISONING PREVENTION INFORMATION TO WORKERS WITH LEAD EXPOSURES**

NOSHP staff provided workers and other adults with elevated blood lead levels (BLLs) with information related to lead exposure health effects and prevention recommendations. Adults with elevated BLLs were mailed notification letters that included the lead level, brief exposure prevention information, and recommendations for follow-up testing. Staff also included prevention information in the form of educational brochures in the mailing. A total of 376 adults with elevated BLLs were given prevention information via mail (Table 3).

#### **SUBMITTING NEBRASKA ADULT BLOOD LEAD LEVEL DATA TO NIOSH ABLES PROGRAM**

During the first 3 years of the project, NOSHP provided technical capacity to the NDHHS Office of Environmental Health Hazards and Indoor Air Quality to summarize annual adult blood lead level data and submit the Nebraska adult blood lead level data to the NIOSH Adult Blood Lead Epidemiology and Surveillance (ABLES) Program for years 2010, 2011, 2012. Once the NIOSH ABLES ended funding for states, NOSHP took over coordination of Nebraska ABLES activities and submitted data for 2013 and 2014. De-identified data was submitted for all BLLs for adults aged 16 years and older, and a total of 4 annual data files were submitted to NIOSH (Table 3). In 2015, Nebraska adult BLL data was incorporated in the first ever CDC MMWR Summary of Notifiable Noninfectious Conditions and Disease Outbreaks – United States.

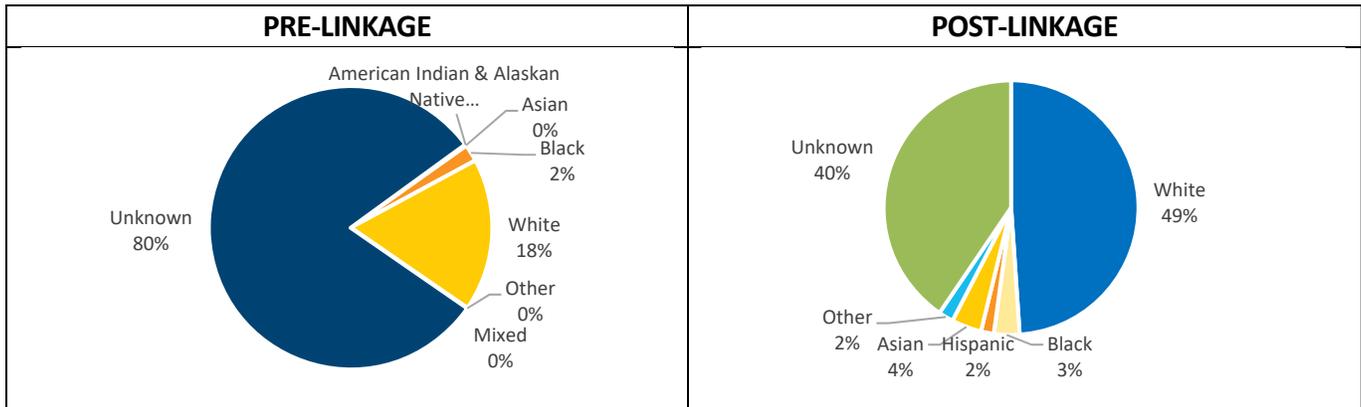
#### **USING DATA LINKAGE TO IMPROVE ADULT BLOOD LEAD LEVEL DATA QUALITY FOR ANALYSIS**

In 2014, NOSHP conducted an analysis to describe the characteristics of adult blood lead levels in Nebraska adults aged 16 years or older from 2008 to 2012. We also used data linkage to increase completeness of demographic information in order to describe elevated lead levels in Nebraska. We linked 11,788 blood lead laboratory tests from NEDSS with the Nebraska drivers' license database so that address of residence and race information could be retrieved. Data linkage increased the completeness of residence information from 57% to 83% and increased race information from 20% to 60% among all linked tests (Figure 7). From 2008 to 2012, 368 individuals with a new blood lead test  $\geq 10$   $\mu\text{g}/\text{dL}$  were identified (Table 4). Incident cases occurred more frequently in men (91%) and in individuals 25–34 years old (30%). Among 219 cases with known race information, 82% were among individuals identified as white. The majority of individuals (63%) resided in just six counties, and the primary metals manufacturing subsector was the most frequently reported industry (61%). The overall average prevalence rate of elevated BLLs  $\geq 10$   $\mu\text{g}/\text{dL}$  was 16.8 cases per 100,000 employed persons. The five-year average incidence rate of new cases with elevated BLLs  $\geq 10$   $\mu\text{g}/\text{dL}$  was 7.7 cases per 100,000 employed persons.

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**FIGURE 7. DISTRIBUTION OF PRE AND POST-LINKAGE ADULT ELEVATED BLOOD LEAD LEVELS BY RACE, NEBRASKA, 2008-2012**



**TABLE 4. NUMBER OF ADULTS WITH A NEW ELEVATED BLL, BY DEMOGRAPHIC CHARACTERISTIC AND LEVEL, NEBRASKA, 2008-2012**

Demographic characteristic	10-24 µg/dL		25-39 µg/dL		≥40 µg/dL		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Total adults</b>	294	79.9	57	15.5	17	4.6	368	100.0
<b>Sex</b>								
Male	272	92.5	49	86.0	16	94.1	337	91.6
Female	16	5.4	4	7.0	1	5.9	21	5.7
Unknown	6	2.0	4	7.0	0	0.0	10	2.7
<b>Age Group</b>								
16 to 24	38	12.9	9	15.8	2	11.8	49	13.3
25 to 34	94	32.0	16	28.1	0	0.0	110	29.9
35 to 44	63	21.4	6	10.5	5	29.4	74	20.1
45 to 54	49	16.7	10	17.5	4	23.5	63	17.1
55 to 64	38	12.9	9	15.8	5	29.4	52	14.1
65 and older	12	4.1	7	12.3	1	5.9	20	5.4
<b>Race/Ethnicity</b>								
White	145	49.3	29	50.9	6	35.3	180	48.9
Black	9	3.1	3	5.3	0	0.0	12	3.3
Hispanic	6	2.0	0	0.0	0	0.0	6	1.6
Asian	14	4.8	0	0.0	0	0.0	14	3.8
Other	5	1.7	1	1.8	1	5.9	7	1.9
Unknown	115	39.1	24	42.1	10	58.8	149	40.5

**Aim 4: Identify and interact with the appropriate state partners, local public health agencies, and other stakeholders to get input on the priority conditions in Nebraska.**

**MEETING WITH STAKEHOLDERS**

Before the project period began, NDHHS had a limited network of occupational health stakeholders. Throughout the project, we were successful in achieving Aim 4 through identifying and interacting with several new stakeholders to receive input and reach a tighter integration of occupational health into mainstream public

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health. In its first year NOSHP identified more than 75 partners throughout the state and staff met with many of those entities to discuss occupational safety and health concerns for Nebraska's workforce. We held in-person and teleconferences with several groups as listed below:

- Central States-Center for Agricultural Safety and Health (CS-CASH)
- University of Nebraska Medical Center, College of Public Health
- University of Nebraska-Lincoln (UNL) Pesticide Safety Education Office
- Nebraska Safety Council
- Nebraska Regional Poison Center
- Occupational Safety and Health Administration (OSHA), Omaha Area Office
- Nebraska Department of Labor (NDOL), Office of Safety
- Internal public health programs at Nebraska DHHS Division of Public Health
- Nebraska Workers' Compensation Court
- United Support and Memorial for Workplace Fatalities

#### DEVELOPING AN OCCUPATIONAL HEALTH STAKEHOLDERS DATABASE

Investigators developed a state occupational health stakeholder database consisting of 187 individuals representing local public health, government agencies, non-profit organizations, and other partners primarily in Nebraska. Data elements collected include stakeholder name, organization, stakeholder type, email, and phone number. A stakeholder database summary is listed below in Table 5.

**TABLE 5. SUMMARY OF NEBRASKA OCCUPATIONAL HEALTH STAKEHOLDER DATABASE MEMBERS**

Stakeholder type	Number of contacts
Local public health department	83
State health department	36
FQHC	20
Tribes	9
Safety organizations	6
Occupational health nurse	5
State labor department	5
Academia partner	4
Public health organizations	3
Public health lab	3
OSHA	3
NIOSH	2
Poison center	2
Workers' compensation insurance	2
Worker's Compensation Court	1
Worker union	1
State occupational health surveillance partner	1
Worker advocacy organization	1
<b>Grand Total</b>	<b>187</b>

#### PARTICIPATING IN STAKEHOLDER PUBLIC HEALTH WORKGROUPS

We brought occupational health capacity to NDHHS by participating in internal workgroups such as and injury prevention workgroup and a BRFSS data users' workgroup. We also participated in several external workgroups

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and activities to seek input on occupational health and to integrate occupational health into other public health activities across the state. In 2014, NOSHP joined the external advisory board of the NIOSH-funded Central States Center for Agricultural Safety and Health (CS-CASH) at the University of Nebraska Medical Center (UNMC) and participated in the 2014 and 2015 CS-CASH advisory committee meetings. NOSHP staff participated in 3 internal agency workgroups and 2 external health workgroups.

**TABLE 6. WORKGROUPS AND OTHER COLLABORATIVE ACTIVITIES**

Title	Workgroup Organization	Meeting Frequency	Date Joined
BRFSS Data Users Group	Nebraska DHHS	Quarterly	2/2/2013
UNL Integrated Pest Management Coalition	UNL Pesticide Safety Education Program	Quarterly	5/15/2013
Injury Community Planning Group	Nebraska DHHS	Annually	7/8/2014
Chronic Disease Workgroup	Nebraska DHHS	Various	12/8/2014
CS-CASH External Advisory Board Meeting	CS-CASH	Annually	4/21/2015

### **INCORPORATING OCCUPATIONAL HEALTH DATA INTO NEBRASKA’S HEALTHY PEOPLE 2020 INITIATIVE**

NOSHP worked with state public health partners to include occupational health data into Nebraska’s Health People 2020 Initiative. This collaboration included deciding which measures to include, developing target rates, and calculating Nebraska specific data measures. Investigators compiled 8 measures related to occupational health, which were included in a Nebraska Health People 2020 baseline report and an online Healthy People 2020 dashboard.

**Aim 5: Disseminate information gained through an annual public report of the results, submission of articles to newsletters, participation in meetings, and giving lectures.**

NOSHP disseminated findings to stakeholders through several means, including the Nebraska Department of Health and Human Services website, presentations, posters, lectures, newsletter articles, and social media. Program staff delivered 10 presentations, 3 lectures, and 2 posters. A summary of dissemination activities is listed in the Tables 7, 8, 9, and 10 below.

### **DATA PRODUCTS, PRESENTATIONS, AND OTHER DISSEMINATION ACTIVITIES**

**TABLE 7. SUMMARY OF DISSEMINATION ACTIVITIES CALENDAR YEAR**

Output	Calendar Year					Total
	2011	2012	2013	2014	2015	
Data Reports		1	1	5	1	8
Industry Spotlights				9		9
Infographics					1	1
Maps				2		2
Newsletters		1	2	9	4	16
Social media				1	2	3
Websites			1			1
Print Media					1	1
Lectures	2			1		3
Posters	1			1		2
Presentations	2		1	6	1	10
<b>Total</b>	<b>5</b>	<b>2</b>	<b>5</b>	<b>34</b>	<b>10</b>	<b>56</b>

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**PRESENTATIONS, POSTERS, AND LECTURES**

**TABLE 8. SUMMARY OF PRESENTATIONS AND POSTERS**

Date	Title	Type	Event	Location	Reach	Presenter
4/6/2011	Occupational Health Surveillance in Nebraska	Lecture	Environmental Health and Society-Core MPH Course	Omaha, NE	25	Ali Welch
6/13/2011	Implementing a Pesticide Poisoning Surveillance System in Nebraska	Poster	2011 CSTE Annual Conference	Pittsburgh, PA	n/a	Ali Welch
10/11/2011	Nebraska Fundamental Occupational Safety and Health Surveillance Program: Occupational Health Indicators	Presentation	2011 Nebraska Safety Council Annual Conference	Lincoln, NE	n/a	Ali Welch
10/11/2011	Workers' Compensation and Surveillance Activities	Presentation	2011 Great Plains Safety and Health Organization	Lincoln, NE	15	Ali Welch
10/13/2011	Occupational Lead Surveillance	Lecture	Environment and Society Core MPH Course	Omaha, NE	25	Ali Welch
9/27/2013	Histoplasmosis outbreak among day camp counselors and campers in Nebraska	Presentation	2013 WestON Annual Meeting	Golden, CO	50	Derry Stover
4/14/2014	Pesticide Poisoning in Nebraska: An Overview in Surveillance Systems, Latest Research, and Emerging Issues	Lecture	UNMC College of Public Health, Seminar	Omaha, NE	20	Derry Stover
5/21/2014	The Good, Bad, and Ugly of Occupational Health Surveillance: Occupational Health Indicators in Region 7	Presentation	Region VII VPPPA Annual Conference	La Vista, NE	20	Derry Stover
6/23/2014	Lead Testing in Nebraska: Using Data Linkage to improve demographic information	Presentation	2014 CSTE Annual Conference	Nashville, TN	15	Derry Stover
6/24/2014	Occupational falls among older workers in Nebraska, 2007-2011	Poster	2014 CSTE Annual Conference	Nashville, TN	n/a	Derry Stover
9/12/2014	Meatpacking – Here's the Beef Part 2: Perspectives From The Beef State	Presentation	2014 WestON Annual Meeting	Golden, CO	75	Derry Stover; Ketki Patel
10/9/2014	Work Safe, Work Smart: Occupational Safety and Health in Nebraska	Presentation	2014 PHAN Annual Conference	Grand Island, NE	20	Derry Stover
10/14/2014	Pesticide Poisoning in Nebraska	Presentation	Nebraska IPM Coalition Meeting	Lincoln, NE	12	Derry Stover
12/1/2014	Meatpacking Injuries and Illnesses in Nebraska	Presentation	OSHA Weekly Meeting	Omaha, NE	8	Derry Stover; Ketki Patel

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Date	Title	Type	Event	Location	Reach	Presenter
6/15/2015	Occupational risk factors among Campylobacter infections in Nebraska, 2005–2013	Presentation	2015 CSTE Annual Conference	Boston, MA	15	Derry Stover

## DATA REPORTS AND PUBLICATIONS

**TABLE 9. SUMMARY OF DATA REPORTS AND PUBLICATIONS**

Date	Title	URL
5/24/2012	Nebraska Occupational Health Indicators Report, 2012	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/OHIs_Summary_Report_2012.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/OHIs_Summary_Report_2012.pdf</a>
12/26/2013	Nebraska Occupational Health Indicators Report, 2013	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/NebraskaOHIReport2013.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/NebraskaOHIReport2013.pdf</a>
1/10/2014	Industry Spotlight: Construction	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/Construction.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/Construction.pdf</a>
1/21/2014	Fatal work-related injuries, 2003-2012	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/FatalWorkInjuries2003-2012.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/FatalWorkInjuries2003-2012.pdf</a>
2/27/2014	Nebraska Occupational Health Indicators, 2000-2009	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/NebraskaOccupationalHealthIndicators20002009.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/NebraskaOccupationalHealthIndicators20002009.pdf</a>
3/13/2014	Industry Spotlight: Transportation and Warehousing	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/TransportationWarehousing.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/TransportationWarehousing.pdf</a>
4/15/2014	Industry Spotlight: Agriculture, Forestry, Fishing, and Hunting	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/AgSpotlight.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/AgSpotlight.pdf</a>
4/15/2014	Industry Spotlight: Manufacturing	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/ManufacturingSpotlight.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/ManufacturingSpotlight.pdf</a>
6/11/2014	Work-Related ED Visits by County, 2008-2012	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/EDRatesByCounty.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/EDRatesByCounty.pdf</a>
6/11/2014	Rates of Work-Related Inpatient Hospitalizations By County, 2008-2012	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/InpatientRatesByCounty.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/InpatientRatesByCounty.pdf</a>
7/17/2014	Industry Spotlight: Accommodation and Food Services	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/AccommodationFoodSpotlight.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/AccommodationFoodSpotlight.pdf</a>
7/17/2014	Industry Spotlight: Health Care and Social Assistance	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/HealthcareAndSocialAssistanceSpotlight.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/HealthcareAndSocialAssistanceSpotlight.pdf</a>
10/17/2014	Industry Spotlight: Food Manufacturing	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/FoodManufacturingSpotlight.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/FoodManufacturingSpotlight.pdf</a>
10/17/2014	Industry Spotlight: Hospitals	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/Hospitals.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/Hospitals.pdf</a>
10/24/2014	Industry Spotlight: Animal Slaughtering and Processing	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/AnimalSlaughteringProcessingSpotlight.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/AnimalSlaughteringProcessingSpotlight.pdf</a>
12/15/2014	Adult Blood Lead Levels in Nebraska, 2008-2012	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/LeadSurveillanceReport2008-2012.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/LeadSurveillanceReport2008-2012.pdf</a>
12/31/2014	Nebraska Occupational Health Indicators Report, 2014	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/NebraskaOHIReport2014.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/NebraskaOHIReport2014.pdf</a>
12/31/2014	Local Health Department Profiles (21 2-page profiles created)	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Pages/lhd.aspx">http://dhhs.ne.gov/publichealth/OccHealth/Pages/lhd.aspx</a>
3/2/2015	Nebraska Statewide Occupational Health Profile, 2008-2012	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/NebraskaStatewide.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/NebraskaStatewide.pdf</a>
4/27/2015	Workplace Injuries and Illnesses in Nebraska	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/WorkplaceInjuriesIllnessesNebraska.png">http://dhhs.ne.gov/publichealth/OccHealth/Documents/WorkplaceInjuriesIllnessesNebraska.png</a>

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**NEWSLETTERS, SOCIAL MEDIA, AND OTHER DISSEMINATION ACTIVITIES**

**TABLE 10. SUMMARY OF NEWSLETTERS, SOCIAL MEDIA, AND OTHER DISSEMINATION ACTIVITIES**

Date	Title	Channel Type	Channel Description	Reach
05/01/2012	Nebraska Establishes Pesticide Exposure Surveillance System	Newsletter	NIOSH eNews	≈50,000 readers
06/20/2013	Pesticide Poisoning: Just and Exposure Away	Newsletter	Nebraska Department of Agriculture Pesticide and Noxious Weed Newsletter	10,700 (mailed to 10,000 pesticide applicators and emailed to listserv members)
10/03/2013	Worker Health and Safety Website (total of 17 web pages)	Website	NDHHS Website	n/a
11/07/2013	Nebraska has Two New Brochures on Lead Poisoning Prevention	Newsletter	NIOSH eNews	≈50,000 readers
01/22/2014	Tweet: Fast Fact – 48 fatal work-related injuries occurred in Nebraska in 2012	Social media	NDHHS Twitter Page	2,161 followers
2/21/2014	Occupational Health Watch: Fatal work-related injuries in Nebraska increased in 2012	Newsletter	NOSHP Occupational Health Watch e-Newsletter	54 subscribers
3/24/2014	Occupational Health Watch: Data update: 600 work-related hospitalizations occurred in Nebraska in 2012	Newsletter	NOSHP Occupational Health Watch e-Newsletter	57 subscribed
04/12/2014	New Occupational Health Indicators Report in Nebraska	Newsletter	NIOSH eNews	≈50,000 readers
4/23/2014	Occupational Health Watch: DHHS releases new wellness toolkit for businesses	Newsletter	NOSHP Occupational Health Watch e-Newsletter	59 subscribers
6/11/2014	Occupational Health Watch: Fall Injuries in Construction	Newsletter	NOSHP Occupational Health Watch e-Newsletter	60 subscribers
7/17/2014	Occupational Health Watch: Heat Illness at Work	Newsletter	NOSHP Occupational Health Watch e-Newsletter	60 subscribers
10/02/2014	Occupational Health Watch: New Data Shows Work-Related Fatalities Fall in Nebraska	Newsletter	NOSHP Occupational Health Watch e-Newsletter	61 subscribers
11/07/2014	Collaboration in Nebraska Addresses Meatpacking Worker Injuries	Newsletter	NIOSH eNews	≈50,000 readers
11/18/2014	Occupational Health Watch: Hospital Workers at Higher Risk for Injury and Illness	Newsletter	NOSHP Occupational Health Watch e-Newsletter	61 subscribers
2/02/2015	Occupational Health Watch: Lead Exposures	Newsletter	NOSHP Occupational Health Watch e-Newsletter	61 subscribers
03/09/2015	State work-related deaths drop, still above national average	Media	Sidney Sun-Telegraph newspaper article	1,649 circulation
3/12/2015	Occupational Health Watch: Local Health Department Data	Newsletter	NOSHP Occupational Health Watch e-Newsletter	60 subscribers

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Date	Title	Channel Type	Channel Description	Reach
04/12/2015	Nebraska Releases Data Profiles for Local Health Departments	Newsletter	NIOSH eNews	≈50,000 readers
4/16/2015	Occupational Health Watch: News Roundup	Newsletter	NOSHP Occupational Health Watch e-Newsletter	56 subscribers
04/28/2015	Tweet: 39 workers died on the job in #NE in 2013. More workplace injury facts at <a href="http://bit.ly/1J759eF">bit.ly/1J759eF</a> #WorkersMemorialDay	Social media	NDHHS Twitter Page	2,161 followers
04/29/2015	Facebook post: It's Workers' Memorial Week and we remember those who have died or been injured on the job.	Social media	NDHHS Facebook page	2,109 followers

**Aim 6: Conduct educational outreach, in collaboration with stakeholders, for workers and employers to address identified occupational health and safety problems, placing special emphasis on reaching underserved and high risk worker populations.**

#### **EDUCATING HIGH RISK CONTRACTING WORKERS ON SILICOSIS HAZARDS**

NOSHP staff worked with the Nebraska Department of Labor to email a silica exposure hazard alert to all contractors registered with the Nebraska Contractor Registry. We redistributed the OSHA/NIOSH Hazard Alert, "Worker Exposure to Silica during Countertop Manufacturing, Finishing, and Installation," to 17,000 registered contractors in Nebraska. Several of these contractors work directly in countertop finishing and installation. The hazard alert was also posted on the NDHHS Worker Health and Safety webpage.

#### **EDUCATING POULTRY WORKERS DURING AN AVIAN INFLUENZA OUTBREAK IN NEBRASKA**

NOSHP staff were directly involved in the public health response to highly pathogenic avian influenza outbreak in Nebraska among bird populations. We conducted in-person interviews of poultry workers to assess level of exposures and to provide educational guidance on personal protective equipment use. We also worked with poultry employers, local health departments, and state and federal agencies within Incident Command System to recommend and ensure CDC guidance was implemented. Our involvement in the public health response resulted in the development and implementation of protocols for monitoring workers for signs and symptoms, chemoprophylaxis, and worker protection. Our recommendations to employers enhanced adherence to PPE use and reduced poultry worker exposures to the avian influenza virus.

#### **CONDUCTING IN-PERSON OUTREACH TO WORKERS AT EVENTS**

NOSHP conducted direct, in-person outreach to various workers through participating at exhibitor booths during public health events. In 2011, NOSHP held an exhibitor booth at the Great Plains Safety and Health Organization Annual Conference. The conference was attended by rural workers and safety professionals and educational materials were provided. From project years 3 to 5, NOSHP staff also conducted outreach to workers and state residents at the Nebraska State Fair, where NDHHS staff provided program information and general worker health and safety tips.

#### **EDUCATING HIGH RISK WORKERS ON PESTICIDE EXPOSURES**

In 2013, program staff held an exhibitor booth at the Nebraska Urban Pest Management Conference where we discussed pesticides exposure prevention one-on-one with pest control worker and other pesticide applicators. NOSHP created and distributed two pesticide poisoning prevention fact sheets at this event. The NOSHP Program Manager also worked with the UNMC College of Public Health to receive a pilot project grant funding to help

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educate workers on pesticide exposure prevention. This grant allowed us to collaborate with the UNL Pesticide Safety Education Program to develop 3 audio public service announcements (PSAs) aimed at providing workers and residents with pesticide safety information. These PSAs were shared with UNL extension programs and various radio stations to air. In 2013, NOSHP authored a newsletter article titled “Pesticide Poisoning: Just and Exposure Away” which provided pesticide exposure and poisoning prevention information. The article was included in the Nebraska Department of Agriculture Pesticide and Noxious Weed Newsletter, which was mailed to approximately 10,000 licensed pesticide applicators in the State.

#### SHARING PREVENTION INFORMATION THROUGH FACTSHEETS AND EDUCATIONAL MATERIALS

NOSHP routinely conducted outreach to workers and employers by developing and sharing educational materials. These materials were published on our NDHHS Worker Health and Safety webpages and were disseminated to workers and employers at health events, at regional conferences, and to local public health departments. We also shared educational materials developed by other programs to workers and employers. A summary of educational materials developed and disseminated to employee and employers is listed below in Table 11.

#### EDUCATIONAL MATERIALS DEVELOPED AND DISSEMINATED

**TABLE 11. EDUCATIONAL MATERIALS DEVELOPED AND DISSEMINATED**

Date	Title	Topic	URL
02/01/2013	Pesticide Poisoning In Nebraska - By The Numbers	Agriculture; Pesticides; Surveillance	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/ByTheNumbers.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/ByTheNumbers.pdf</a>
6/27/2013	Nebraska Occupational Health Profile, 2010	Occupational Health Indicators	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/OccupationalHealthProfile.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/OccupationalHealthProfile.pdf</a>
3/7/2014	Surveillance Data Update: March 2014	Surveillance	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/SurveillanceDataUpdate.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/SurveillanceDataUpdate.pdf</a>
6/10/2014	Fall-Related Injuries in Construction	Data; Slips, Trips, and Falls; Surveillance	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/FallRelatedInjuriesInConstruction.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/FallRelatedInjuriesInConstruction.pdf</a>
6/10/2014	Hazard Alert: Heat Illness at Work Can Be Deadly	Heat Illness	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/HeatIllnessAtWorkCanBeDeadly.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/HeatIllnessAtWorkCanBeDeadly.pdf</a>
9/22/2014	Health and Safety Tips for Aging Farmers (developed by CS-CASH)	Agriculture; Older Workers	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/AgingFarmers.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/AgingFarmers.pdf</a>
9/22/2014	Health and Safety Tips for New and Young Farmers (developed by CS-CASH)	Agriculture	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/NewAndYoungFarmers.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/NewAndYoungFarmers.pdf</a>
9/22/2014	Health and Safety Tips for Mid-Life Farmers (developed by CS-CASH)	Agriculture	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/MidLifeFarmers.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/MidLifeFarmers.pdf</a>
2/24/2015	Lead Dust Cleanup And Control (Spanish)	Lead	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/LeadDustCleanupAndControlSpanish.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/LeadDustCleanupAndControlSpanish.pdf</a>
2/24/2015	Preventing Lead Poisoning In Adults (Spanish)	Lead	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/PreventingLeadPoisoningInAdultsSpanish.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/PreventingLeadPoisoningInAdultsSpanish.pdf</a>
2/24/2015	Preventing Lead Poisoning in Adults	Lead	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/LeadPoisoningInAdults.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/LeadPoisoningInAdults.pdf</a>
2/24/2015	NOSHP Factsheet	Program Info	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/NOSHPFactsheet.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/NOSHPFactsheet.pdf</a>

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**Aim 7: Assemble an advisory committee that will meet at least yearly to develop priority conditions of special importance in Nebraska.**

#### ADVISORY COMMITTEE MEETINGS

The NOSHP successfully assembled an occupational health surveillance advisory committee and held 4 in-person committee meetings during the project. A summary of meeting events is provided in Table 12.

**TABLE 12. SUMMARY OF OCCUPATIONAL HEALTH SURVEILLANCE ADVISORY COMMITTEE MEETINGS**

Meeting Date	Meeting Name	Meeting location	Number of attendees
06/24/2011	2011 Occupational Safety and Health Surveillance Advisory Committee Meeting	Mahoney State Park, Ashland, NE	12
04/01/2013	2013 Occupational Safety and Health Surveillance Advisory Committee Meeting	Mahoney State Park, Ashland, NE	12
05/28/2014	2014 Occupational Safety and Health Surveillance Advisory Committee Meeting	Mahoney State Park, Ashland, NE	15
05/27/2015	2015 Occupational Safety and Health Surveillance Advisory Committee Meeting	Mahoney State Park, Ashland, NE	17

Advisory committee members represented a broad range of occupational health stakeholder group, including academia, state and local government, and non-profit organizations. The committee is the only active group consisting academia, state and local government, and non-profit organizations that meets to address state-level occupational health issues in Nebraska. By the end of the project, the advisory committee consisted of 18 members. A summary of committee representatives that participated in the 2015 advisory committee meeting is listed in Table 13 below. Each year the committee provided quantitative and qualitative input on the future efforts of the NOSHP. The committee also acted to identify priorities, emerging issues, and provided a networking opportunity for stakeholders. A summary of priority projects ranked by committee members is provided in Appendix C.

#### ADVISORY COMMITTEE MEMBERS

**TABLE 13. OCCUPATIONAL SAFETY AND HEALTH SURVEILLANCE ADVISORY COMMITTEE MEMBERS, MAY 2015**

Name	Organization	Group	Member Type
Alison Keyser-Metobo	Nebraska DHHS, Epidemiology	Epidemiology	Internal
Anne O'Keefe	Douglas County Health Department	Local Health Departments	External
Beverly Reicks	National Safety Council, Nebraska	Safety Councils	External
Bill Hetzler	Nebraska Department of Labor	State Labor Dept	External
Bonita Winingham	OSHA Omaha Area	OSHA	External
Chandran Achutan	UNMC, College of Public Health	Academic Partners	External
Cindy Kempt	Nebraska Occupational Health Nurses Association	Occ Health Nurses	External
Derry Stover	Nebraska DHHS, Occupational Health	Occupational Health	Internal
Harpriya Kaur	Nebraska DHHS, Occupational Health	Occupational Health	Internal
James Lillis	Nebraska Workers' Compensation Court	Workers' Comp	External
Jason Kerkmun	Nebraska DHHS, Injury Prevention Program	Injury Prevention	Internal
Kathy Jacobitz	Nebraska Regional Poison Center	Poison Center	External
Lisa Henning	UNICO Group	Worker's Comp Insurance	External

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Risto Rautianinen	Central States Center for Agricultural Safety & Health	Academic Partners	External
Teresa Anderson	Central District Health Department	Local Health Departments	External
Terry Holt	Nebraska Safety Council	Safety Councils	Guest
Tom Safranek	Nebraska DHHS, Epidemiology	Epidemiology	Internal
Tonya Vyhliadal	Nebraska Safety Council	Safety Councils	External

**Aim 8: Participate in Council of State and Territorial Epidemiologists (CSTE) and the Western States Occupational Network (WestON) by attending meetings and conference calls.**

#### **PARTICIPATING WITH THE OCCUPATIONAL HEALTH COMMUNITY**

During the funded project, NOSHP staff participated with the occupational health community in several ways. NOSHP staff attended four annual conferences for the Council of State and Territorial Epidemiologists (CSTE), four annual WestON meetings, six CSTE meetings, and two NIOSH Pesticide-Sensor Program workshops. During these events, staff not only to learn best practices and to increase skill sets of program staff. Table 14 below shows a summary of meetings, conferences, and other events attended.

**TABLE 14. MEETINGS, CONFERENCES, TRAININGS, AND OTHER PARTICIPATION WITH OCCUPATIONAL HEALTH COMMUNITY**

Event Type	Event Date	Event Name	Organization	Location
Conferences	6/13/2011	CSTE 2011 Annual Conference	CSTE	Pittsburg, PA
Conferences	10/10/2011	Great Plains Safety and Health Organization 2011 Annual Safety and Health Conference	Great Plains Safety and Health Organization	Kearney, NE
Conferences	10/11/2011	Nebraska Safety Council 2011 Annual Conference	Nebraska Safety Council	Lincoln, NE
Conferences	2/12/2013	Nebraska Urban Pest Management 2013 Conference	UNL and Nebraska Pest Control Association	Lincoln, NE
Conferences	6/12/2013	CSTE 2013 Annual Conference	CSTE	Pasadena, CA
Conferences	10/9/2013	PHAN 2013 Annual Conference	Public Health Association of Nebraska (PHAN)	Grand Island, NE
Conferences	2/18/2014	Nebraska Urban Pest Management 2014 Conference	UNL and Nebraska Pest Control Association	Lincoln, NE
Conferences	6/23/2014	CSTE 2014 Annual Conference	CSTE	Nashville, NE
Conferences	10/7/2014	Nebraska Safety Council 2014 Annual Conference	Nebraska Safety Council	Lincoln, NE
Conferences	10/9/2014	PHAN 2014 Annual Conference	Public Health Association of Nebraska (PHAN)	Grand Island, NE
Conferences	6/23/2015	CSTE 2015 Annual Conference	CSTE	Boston, MA
Meetings	11/15/2010	COSS and CSTE Occupational Health Subcommittee Meeting	COSS/CSTE	Austin, TX
Meetings	9/22/2011	WestON 2011 Annual Meeting	NIOSH/WestON/CSTE	Denver, CO
Meetings	12/6/2011	NIOSH Occupational Health Surveillance Partners Meeting	NIOSH	Orlando, FL
Meetings	12/7/2011	CSTE Occupational Health Winter Meeting	CSTE	Orlando, FL
Meetings	9/20/2012	WestON 2012 Annual Meeting	NIOSH/WestON/CSTE	Denver, CO

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Event Type	Event Date	Event Name	Organization	Location
Meetings	12/4/2012	NIOSH Occupational Health Surveillance Partners Meeting	NIOSH	Tampa, FL
Meetings	12/5/2012	CSTE Occupational Health Winter Meeting	CSTE	Tampa, FL
Meetings	4/17/2013	CSTE Spring Meeting: Counting Work-related injuries and illnesses: Taking steps to close the gap.	CSTE	Washington, DC
Meetings	7/31/2013	UNL Integrated Pest Management Coalition 2013 Meeting	UNL IPM Coalition	Lincoln, NE
Meetings	9/27/2013	WestON 2013 Annual Meeting	NIOSH/WestON/CSTE	Golden, CO
Meetings	12/3/2013	NIOSH Occupational Health Surveillance Partners Meeting	NIOSH	Atlanta, GA
Meetings	12/4/2013	CSTE Occupational Health Winter Meeting	CSTE	Atlanta, GA
Meetings	9/11/2014	WestON 2014 Annual Meeting	NIOSH/WestON/CSTE	Golden, CO
Meetings	10/14/2014	UNL Integrated Pest Management Coalition 2014 Meeting	UNL IPM Coalition	Lincoln, NE
Meetings	12/09/2014	NIOSH Occupational Health Surveillance Partners Meeting	NIOSH	Cincinnati, OH
Meetings	12/10/2014	CSTE Occupational Health Winter Meeting	CSTE	Cincinnati, OH
Trainings	4/10/2012	Beginner-Level GIS Training	Nebraska DHHS GIS Program	Lincoln, NE
Trainings	9/10/2012	An Introduction to SAS: SAS Basics for Windows Users	UNL Department of Statistics	Lincoln, NE
Trainings	9/11/2012	Beyond SAS Basics: Techniques for the Intermediate Level SAS User	UNL Department of Statistics	Lincoln, NE
Trainings	4/15/2013	Nebraska SAS Users Group Training	Nebraska SAS Users Group	Omaha, NE
Trainings	8/13/2013	Nebraska 2013 Data Users Conference	Nebraska State Data Center (UNO CPAR)	Omaha, NE
Trainings	1/3/2014	Introduction to Incident Command System ICS-100.b	FEMA	Online
Trainings	3/10/2014	ICS for Single Resources and Initial Action Incident, ICS-200.b	FEMA	Online
Trainings	3/10/2014	National Incident Management System and Introduction, ICS-700.a	FEMA	Online
Trainings	3/10/2014	National Response Framework, An Introduction, ICS-800.b	FEMA	Online
Trainings	3/27/2014	Advanced-Level GIS Training	Nebraska DHHS GIS Program	Lincoln, NE
Trainings	4/29/2014	SAS e-Learning Course: SAS Programming 1: Essentials	SAS Institute	Online
Trainings	6/18/2014	Epi Info 2 Day Training Course	Nebraska DHHS	Lincoln, NE
Trainings	6/26/2014	Using SAS Survey Procedure for BRFSS Descriptive Analysis with Industry and Occupation	CSTE OH Subcommittee	Nashville, TN
Trainings	8/13/2014	Emergency Responder Health Monitoring System (ERHMS) Training	CDC	Omaha, NE
Trainings	8/14/2014	CDC Assessment of Chemical Exposures (ACE) Training	CDC/ATSDR	Omaha, NE

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Event Type	Event Date	Event Name	Organization	Location
Trainings	8/19/2014	Nebraska 2014 Data Users Conference	Nebraska State Data Center	Omaha, NE
Trainings	10/21/2014	Census Public Use Microdata (PUMS) Sample Data Training	Nebraska State Data Center	Omaha, NE
Webinars	1/15/2014	ICD-10-CM injury coding and a proposed nature of injury framework for presenting injury data	ISDS	Online
Webinars	2/25/2015	CWCS Webinar- Ohio BWC Year of Safety	CDC CWCS	Online
Webinars	2/27/2015	Assessing and Responding to the Health and Safety Needs of Workers in the Temporary Services Industry	CSTE OH Committee	Online
Workshops	1/31/2014	SENSOR-Pesticides 2014 Winter Workshop	CDC/NIOSH SENSOR-Program	Denver, CO
Workshops	2/6/2015	NIOSH SENSOR Pesticides 2015 Winter Workshop	CDC/NIOSH SENSOR-Program	New Orleans, LA

**Aim 9: Prepare an annual performance review of the accomplishments and impacts of the surveillance program**

**NOSHP ANNUAL PROGRAM REPORTS**

NOSHP completed five annual program reports and submitted them to NIOSH within the deadline each year. Reports included a review of the accomplishments and impact of the program, as well as outputs and outcomes. A summary and links to the annual reports is listed below.

**TABLE 15. SUMMARY OF NOSHP ANNUAL PROGRAM REPORTS**

Report Title	Timeframe	URL
2015 NOSHP Annual Program Report	07/01/2014 - 06/30/2015	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/AnnualReportFY2015.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/AnnualReportFY2015.pdf</a>
2014 NOSHP Annual Program Report	07/01/2013 - 06/30/2014	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/2014NOSHPAnnualReport.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/2014NOSHPAnnualReport.pdf</a>
2013 NOSHP Annual Program Report	07/01/2012 - 06/30/2013	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/2013NOSHPAnnualReport.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/2013NOSHPAnnualReport.pdf</a>
2012 NOSHP Annual Program Report	07/01/2011 - 06/30/2012	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/2012NOSHPAnnualReport.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/2012NOSHPAnnualReport.pdf</a>
2011 NOSHP Annual Program Report	07/01/2010 - 06/30/2011	<a href="http://dhhs.ne.gov/publichealth/OccHealth/Documents/2011NOSHPAnnualReport.pdf">http://dhhs.ne.gov/publichealth/OccHealth/Documents/2011NOSHPAnnualReport.pdf</a>

**SURVEILLANCE SYSTEM EVALUATION**

At the end of the project, NOSHP conducted a brief evaluation of the occupational health surveillance system. We adapted evaluation guidelines outlined in CDC's Updated Guidelines for Evaluating Public Health Surveillance Systems and other evaluation guideline documents to conduct a process evaluation for four data systems. The four data systems selected for this brief evaluation based on its importance to NOSHP for conducting routine OH surveillance activities. These four data systems were: 1) Workers' Compensation Claims, 2) Survey of Occupational

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Injuries and Illnesses, 3) Census of Fatal Occupational Injuries, and 4) Hospital Discharge Database. Detailed descriptions and evaluation results were developed and organized in tables for each of the 4 data systems. An example description table for workers' compensation data is provided in Appendix D. The evaluation also scored each of the four systems on seven attributes. The evaluation scores are listed in Table 16 below.

**TABLE 16: EVALUATION SCORES FOR DATA SYSTEMS WC CLAIMS, SOII, CFOI, AND HDD BY KEY SYSTEM ATTRIBUTES**

System attribute*	What each system attribute indicates?	Evaluation scores for data systems			
		WC claims	SOII	CFOI	HDD
Acceptability	Willingness of persons and organizations to participate in the system.	4	4	4	3
Data quality	Completeness and validity of data recorded	3	3	4	3
Flexibility	Ability to adapt to changing information needs or technological operating conditions with little additional time, personnel or funds.	4	4	4	3
Representativeness	Ability to accurately describe the occurrence of a health-related event over time and its distribution in the population by place and person.	3	3	4	2
Simplicity	Systems structure and ease of operation.	3	3	3	2
Timeliness	Reflects speed between steps in the system.	5	3	3	3
Usefulness	Potential to prevent and control adverse health-related events, including an improved understanding of the public health implications of such events.	3	4	4	2
Overall average score of a data system:		3.6	3.4	3.7	2.6

\*Each attribute's score was ranked 1 to 5, where 1=very low, 2=low, 3=acceptable, 4=high, and 5=very high. Similarly, an overall average score indicates the quality of system based on the key attributes examined in this evaluation.

We found all four data systems are moderately complex to operate. This is because WC claims, CFOI, SOII and HDD cover a wide range of work-related injuries and illnesses in different population groups, and rely on multiple sources to obtain information. Gaps in population coverage and completeness and validity of data limit the generalizability of data from the four databases evaluated in this report. The differences in the purpose of data collection, population covered, type of data and case-ascertainment explain the limited or no interoperability in these four data systems. Results from this evaluation suggest the need to improve data capture, data quality, and timeliness of data available for OH surveillance activities. Also, all four data systems are not utilized to their fullest potential for OH surveillance, research, and prevention activities.

### Conclusions

The overall objective of this project was to establish a Fundamental occupational health and safety surveillance program within the State of Nebraska. The goal of this program was to conduct public health surveillance in order to reduce the incidence of work-related injuries, illnesses, and exposures. The Nebraska Occupational Safety and Health Surveillance Program (NOSHSP) successfully developed an occupational health surveillance system and built the capacity to identify and track occupational injuries and illnesses, to describe the magnitude and trends of worker health and safety, and to develop prevention and outreach strategies. Calculating occupational health indicators resulted in an increased availability of occupational injury and illness data to stakeholders and improved the knowledge of trends and patterns in the status worker health and safety in Nebraska. Our work in collecting occupational health indicators identified that Nebraska's occupational nonfatal injury and illness rate and the fatal injury rate is higher than the national average. NOSHSP staff also produced several data analyses and reports, and enhanced the collection of work information in the state health data collection systems such as the

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NDHHS Behavioral Risk Factor Surveillance System (BRFSS), Nebraska EMS Information System (NEMSIS), and the Nebraska Syndromic Surveillance System.

NOSHP enhanced surveillance for work-related poisonings by developing a surveillance system to capture information on poisoning or illness due to exposure to pesticides and we provided information to medical providers to guide recommendations for prevention. Pesticide poisoning case data was submitted to NIOSH, which enhanced the multi-state SENSOR-Pesticides Program’s surveillance system. We also collaborated with state partners to expand the adult blood lead surveillance to better track work-related exposures. These efforts resulted in improved tracking of elevated blood lead results among adults, enhanced national lead surveillance, and increased prevention information received by health care providers and workers. To enable our findings to be translated for prevention, we identified and interacted with several stakeholders across government, academia, and non-profit organizations. Our findings were disseminated to occupational health stakeholders to help inform them of the magnitude and trends of worker health and safety issues through data reports, presentations, and lectures. Dissemination activities lead to an increased stakeholder awareness of findings, recommendations, and prevention strategies. NOSHP conducted education and outreach activities through developing prevention informational materials and sharing them with workers and employers. This lead to improved worker safety and health awareness among workers and employers

An advisory committee of stakeholders was convened to provide input to direct activities. The committee enhanced occupational health in Nebraska by identifying new priorities, evaluating approaches, and developing new stakeholder networks. NOSHP worked to advance efforts of the occupational health community, including activities organized by the Council of State and Territorial Epidemiologists (CSTE) and the NIOSH Western States Occupational Health Network (WestON), by attending meetings and participating in phone calls and workgroups. Finally, NOSHP performed an annual performance review of the accomplishments and impact of the program, and we conducted an evaluation of the occupational health surveillance system. This surveillance evaluation helped NOSHP areas of improvement to enhance the quality and usefulness of the NOSHP data.

By the end of the project period, NDHHS developed a fully operational and sustainable fundamental occupational health and safety surveillance program allowing for state-based tracking and prevention efforts aimed at reducing occupational injuries and illnesses in Nebraska. Before this cooperative agreement was awarded, there were limited state-based public health activities in occupational safety and health in Nebraska. The funded project enabled NDHHS to more closely align with activities described in the CDC/CSTE 2008 publication “Guidelines for Minimum and Comprehensive State-based Public Health Activities in Occupational Safety and Health”. The report describes 36 recommended state-level approaches for public health activities in occupational injury and illness prevention. The document outlines both minimum and comprehensive public health approaches to occupational public health in three sections that correspond to these three core public health functions: Assessment, Policy Development, and Assurance. The document is available at: <https://www.cdc.gov/niosh/docs/2008-148/pdfs/2008-148.pdf>. By the end of the project, NOSHP met 27 out of 36 recommended activities. A summary of activities met and not met and examples of activities are listed below in Table 17.

**TABLE 17. RECOMMENDED STATE-BASED PUBLIC HEALTH ACTIVITIES IN OCCUPATIONAL SAFETY AND HEALTH**

Program Level	Recommended Activity	Status	Example
<b>Assessment</b>			
Minimum	Develop a profile of state-specific characteristics associated with work and occupational risks, including the distribution of industry and occupation types and worker demographics.	Met	Produced by OHI collection and reports (described in Aims 1, 5)

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Program Level	Recommended Activity	Status	Example
Minimum	Access and assess available health data sources and population (denominator) data for their strengths and limitations for occupational health surveillance.	Met	Surveillance system evaluation conducted (described in Aim 9)
Minimum	Regularly compile and disseminate existing data to stakeholders and the public on the magnitude, trends, and risks for occupational illnesses and injuries in the state. Dissemination modalities should include Web postings at a minimum.	Met	Produced by OHI collection and reports (described in Aims 1, 5)
Minimum	Using validated methodologies, periodically generate those Occupational Health Indicators that are within the scope of available data and resources in the state.	Met	Produced by OHI collection and reports (described in Aims 1, 5)
Minimum	Review surveillance reports within the public health agency to identify opportunities for inserting data related to the occupational health aspects of these subjects.	Met	Reviewed. Occ health data used in Healthy People 2020 report and Injury Prevention Program report (described in Aim 4).
Comprehensive	Guided by state-specific priorities for illness and injury surveillance, advocate for mandatory health care provider reporting of occupational illnesses and injuries and laboratory reporting of tests (e.g., lead and other heavy metals) related to occupational exposure.	Met	Already reportable. Reporting requirements communicated to medical providers and labs (described in Aims 2, 3)
Comprehensive	Compile case reports in secure, electronic data files.	Met	Conducted for lead and pesticide case reports (described in Aims 2, 3)
Comprehensive	Conduct sufficient follow-up with reported cases to identify worksites where exposure occurred and to determine whether others are at risk.	Met	Conducted for lead exposures (described in Aim 3)
Comprehensive	Advocate for the inclusion of information, including employer, industry, and occupation, about work-related health conditions in state health data sources.	Met	Added industry and occupation to BRFSS data (described in Aim 1)
Comprehensive	Advocate for mandatory coding of cause and place of injuries ("External-cause-of injury" codes) in state hospital discharge and emergency department databases.	Met	E-Codes already coded in HDD data and used (described in Aim 1)
Comprehensive	Periodically compile and disseminate data to stakeholders and the public on the magnitude, trends, and risks in occupational illnesses, injuries, and hazards, including interpretation of significant findings relevant for prevention activities and generation of new hypotheses.	Met	Produced by OHI collection and reports (described in Aims 1, 5)
Comprehensive	Develop and implement targeted, condition-specific surveillance systems that are consistent with recommendations from CSTE and/or specific interests of state stakeholders. Include collection of in-depth information on the causes and associated risk factors of the conditions under surveillance.	Met	Developed surveillance systems for lead and pesticide poisonings (described in Aims 2, 3)
Comprehensive	Collaborate with other states and NIOSH to make state-based data available nationally in useful, standardized formats. At a minimum this includes annual generation of all Occupational Health Indicators developed by the CSTE Occupational Health Surveillance Work Group.	Met	Produced by OHI collection and reports (described in Aims 1, 5)
<b>Policy Development</b>			
Minimum	Develop and maintain a contact list (e.g., e-mail, address list) of stakeholders in the public and private sectors. This list should be used to target dissemination of reports with surveillance findings and of other materials.	Met	Stakeholder list developed (described in Aim 4)
Minimum	Develop working relationships with other state and federal agencies conducting occupational health activities to promote actions that address problems identified through surveillance.	Met	Stakeholders identified (described in Aim 4)
Minimum	Develop working relationships within the state health agency to promote awareness of occupational health issues by other public health programs.	Met	Working relationships developed (described in Aim 4)

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Program Level	Recommended Activity	Status	Example
Minimum	Develop and maintain a site on the state's Web system that serves as a portal for scientifically sound information about occupational health issues in the state and nationally.	Met	Worker health and safety website created (described in Aims 5, 6)
Comprehensive	Collaborate with stakeholders in establishing statewide public health objectives for occupational health based on local, state, and federal health priorities (e.g., Healthy People 2020 objectives).	Met	Occupational health and safety measures included in Nebraska Healthy People 2020 (described in Aim 4)
Comprehensive	Publish a document that establishes long-range goals and objectives for occupational public health for the state, sets priority areas for surveillance and intervention, and proposes resource allocation.	Not Met	n/a
Comprehensive	Develop or support enabling legislation, regulations, and policies. These may include establishment of a state-funded occupational public health program, minimum standards in occupational health for local health departments, extension of federal OSHA regulations to public employees, and provisions for state-funded occupational health clinic services.	Not Met	n/a
Comprehensive	Implement strategies (e.g., serve on advisory committees, serve as technical advisor on occupational health issues to public health leaders or to other public health programs) to ensure that occupational public health issues and programs are integrated into the full range of public health programs in the state, including those on chronic illness and injury control, environmental health, communicable disease, and emergency preparedness.	Met	Member of advisory board for CS-CASH (described in Aim 4)
Comprehensive	Develop programs and working relationships to mobilize and support initiatives among prevention partners (e.g., OSHA) and other stakeholders to promote occupational illness and injury prevention and control.	Met	Developed working relationships with OSHA and safety organizations (described in Aims 4, 5, 6)
Comprehensive	Develop program capacity and flexibility to identify and respond to emerging occupational hazards, issues, or unique prevention opportunities.	Not Met	n/a
<b>Assurance</b>			
Minimum	Maintain sufficient expertise, Web-based or written materials, and lists of resources so that inquiries from the public about the nature, causes, and control of adverse health effects of occupational hazards can be addressed or referred appropriately.	Met	Materials and resources available on worker health and safety website (described in Aims 4, 5, and 6).
Minimum	Maintain sufficient technical expertise to provide referrals in response to reports of particularly serious occupational injuries or illness that signal a need for immediate intervention to prevent additional morbidity.	Met	Developed an agreement to refer work-related lead poisoning to OSHA
Minimum	Allocate sufficient funds to support office functions, ensure access to occupational health data, maintain the occupational health Website, print and mail materials, and enable staff to attend an annual meeting with other states' occupational public health staff.	Met	Funds were allocated to enable access to materials and attend meetings
Minimum	Assign one epidemiologist to function as the occupational health epidemiologist, and designate that person to serve as liaison with NIOSH and with the other state occupational epidemiologists	Met	1 FTE is assigned to occupational health epidemiology
Comprehensive	Promote enforcement and, where indicated, revision of pertinent laws and regulations by evaluating the effectiveness of the regulatory authority to reduce work related risks.	Not Met	n/a
Comprehensive	Compile a comprehensive library of educational materials and technical resources and make it available to stakeholders throughout the state.	Met	Educational materials, reports, and resources posted on NDHHS website and NIOSH Clearinghouse
Comprehensive	Ensure follow-back to worksites identified by occupational illness and injury surveillance data as sources of hazards to identify and ameliorate	Not Met	n/a

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Program Level	Recommended Activity	Status	Example
	hazardous conditions, especially worksites associated with vulnerable groups of workers that fall outside the jurisdiction of regulatory agencies.		
Comprehensive	Ensure that lessons learned from worksite follow-back are disseminated to empower employers and employees in similar at-risk occupations/industries to implement prevention strategies, including engineering and administrative controls, personal protective equipment, and worker education.	Not Met	n/a
Comprehensive	Develop linkages with academic medical centers to promote medical education and research in occupational safety and health and the development of hazard control strategies.	Met	Academic partners are members of advisory committee (described in Aim 7).
Comprehensive	Assign one or more professionals in the disciplines of industrial hygiene, health education, safety engineering, occupational medicine, occupational health nursing, and toxicology to the occupational public health program.	Not Met	n/a
Comprehensive	Allocate sufficient funds to support program operations, conduct field investigations, develop and evaluate education and intervention programs, and maintain a competent occupational public health workforce.	Not Met	n/a
Comprehensive	Promote workforce development, including, for example, support for mentoring, internship, and fellowship programs.	Met	NOSH hosted several interns and coordinated student projects
Comprehensive	Implement process and outcome evaluation measures for the occupational public health program.	Not Met	n/a

## Publications

### NON-PEER REVIEWED PUBLICATIONS

#### *Technical Reports*

- NDHHS. Nebraska Occupational Health Indicators Report, 2012. Data Report. Published 5/24/2012. Available at [http://dhhs.ne.gov/publichealth/OccHealth/Documents/OHIs\\_Summary\\_Report\\_2012.pdf](http://dhhs.ne.gov/publichealth/OccHealth/Documents/OHIs_Summary_Report_2012.pdf).
- NDHHS. Nebraska Occupational Health Indicators Report, 2013. Data Report. Published 12/26/2013. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/NebraskaOHReport2013.pdf>.
- NDHHS. Fatal work-related injuries, 2003-2012. Data Report. Published 1/21/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/FatalWorkInjuries2003-2012.pdf>.
- NDHHS. Nebraska Occupational Health Indicators, 2000-2009. Data Report. Published 2/27/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/NebraskaOccupationalHealthIndicators20002009.pdf>.
- NDHHS. Adult Blood Lead Levels in Nebraska, 2008-2012. Data Report. Published 12/15/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/LeadSurveillanceReport2008-2012.pdf>.
- NDHHS. Nebraska Occupational Health Indicators Report, 2014. Data Report. Published 12/31/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/NebraskaOHReport2014.pdf>.
- NDHHS. Industry Spotlight: Construction. Data Report. Published 1/10/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/Construction.pdf>.
- NDHHS. Industry Spotlight: Transportation and Warehousing. Data Report. Published 3/13/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/TransportationWarehousing.pdf>.

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NDHHS. Industry Spotlight: Agriculture, Forestry, Fishing, and Hunting. Data Report. Published 4/15/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/AgSpotlight.pdf>.

NDHHS. Industry Spotlight: Manufacturing. Data Report. Published 4/15/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/ManufacturingSpotlight.pdf>.

NDHHS. Industry Spotlight: Accommodation and Food Services. Data Report. Published 7/17/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/AccommodationFoodSpotlight.pdf>.

NDHHS. Industry Spotlight: Health Care and Social Assistance. Data Report. Published 7/17/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/HealthcareAndSocialAssistanceSpotlight.pdf>.

NDHHS. Industry Spotlight: Food Manufacturing. Data Report. Published 10/17/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/FoodManufacturingSpotlight.pdf>.

NDHHS. Industry Spotlight: Hospitals. Data Report. Published 10/17/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/Hospitals.pdf>.

NDHHS. Industry Spotlight: Animal Slaughtering and Processing. Data Report. Published 10/24/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/AnimalSlaughteringProcessingSpotlight.pdf>.

NDHHS. Workplace Injuries and Illnesses in Nebraska. Infographic. Published 4/27/2015. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/WorkplaceInjuriesIllnessesNebraska.png>.

NDHHS. Local Health Department Profiles (21 profiles created). Local Health Department data. Published 12/31/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Pages/lhd.aspx>.

NDHHS. Nebraska Statewide Occupational Health Profile, 2008-2012. Data Report. Published 3/2/2015. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/NebraskaStatewide.pdf>.

NDHHS. Work-Related ED Visits by County, 2008-2012. Maps. Published 6/11/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/EDRatesByCounty.pdf>.

NDHHS. Rates of Work-Related Inpatient Hospitalizations By County, 2008-2012. Maps. Published 6/11/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/InpatientRatesByCounty.pdf>.

NDHHS. Rates of Work-Related Inpatient Hospitalizations By County, 2008-2012. Maps. Published 6/11/2014. Available at <http://dhhs.ne.gov/publichealth/OccHealth/Documents/InpatientRatesByCounty.pdf>.

### **Cumulative Inclusion Enrollment**

There was no cumulative inclusion enrollment.

### **Inclusion of gender and minority study subjects**

Data were collected regardless of gender, or racial or ethnic origin. We received input from stakeholders and advocates of workers at higher risk of illness and injury, including but not limited to Hispanic workers, Non-English speaking workers, women, and older workers. There was no active enrollment of minority because existing data was used. In descriptive data analyses, we identified injury and illness numbers and rates by gender, age, race, and ethnicity when possible. When applicable, educational documents were translated into Spanish.

### **Inclusion of Children**

Data was collected regardless of age. There was no active enrollment of children because existing data will be used. In descriptive data analyses, we identified and reported injury and illness numbers and rates for age ranges of 16 years old to 20 years old.

### **Materials available for other investigators**

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All Nebraska occupational health indicator aggregate data was stored in a Microsoft Access database and can be shared with other investigators and the public upon request by email or phone. OHI data were submitted to NIOSH annually, and were displayed on data dashboards on the CSTE website <http://www.cste.org/?OHIndicators>. OHI data and the findings of our analyses were also summarized in annual OHI reports and other technical reports and were made available to the public by posting online on the NDHHS website. Reports, educational materials, and other documents were also posted on the NDHHS website and the NIOSH State-based Occupational Health Surveillance Clearinghouse at <https://wwwn.cdc.gov/niosh-statedocs/>. Data and reports were also shared to several stakeholders through newsletters and social media posts.

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**Appendix A. Nebraska Occupational Health Indicators, 2007-2013\***

Indicator	Indicator Name	2007	2008	2009	2010	2011	2012	2013
P1	Percentage of civilian workforce unemployed	3.0	3.3	4.6	4.8	4.5	4.0	4.1
P2	Percentage of civilian employment self-employed	9.4	9.4	8.6	8.7	8.6	8.7	8.8
P3	Percentage of civilian employment in part-time jobs	19.0	18.9	19.5	18.7	18.8	19.5	17.9
P4	<40 hours	34.6	34.6	40.3	37.9	36.1	35.5	33.1
P4	40 hours	31.9	29.8	28.0	32.8	32.1	32.8	35.2
P4	41+ hours	33.4	35.5	31.8	31.4	31.7	31.7	31.7
P5	Males	53.1	52.7	51.9	51.6	52.2	52.5	53.4
P5	Females	46.9	47.2	48.1	48.4	47.8	47.5	46.6
P6	16 to 17	2.7	2.5	2.4	2.1	1.5	1.6	1.7
P6	18 to 64	92.5	92.2	92.5	92.3	91.7	91.4	91.1
P6	65+	4.8	5.2	5.1	5.6	6.8	7.0	7.2
P7	White	92.6	93.4	92.7	91.9	93.1	92.1	91.2
P7	Black	3.4	3.3	4.1	4.0	3.0	3.4	4.0
P7	Other	4.0	3.3	3.2	4.1	3.8	4.6	4.8
P8	Percentage of civilian employment by Hispanic Origin	6.2	5.9	7.4	8.0	9.3	9.6	9.8
P9	Mining	0.1	0.1	0.1	0.1	0.2	0.3	0.2
P9	Construction	6.2	6.4	5.5	6.4	6.9	6.9	7.0
P9	Manufacturing - Durable goods	5.8	5.8	5.8	4.9	4.9	4.9	5.2
P9	Manufacturing - Non-durable goods	6.2	5.5	6.1	7.3	7.5	7.4	7.6
P9	Wholesale and Retail Trade	16.5	16.3	16.5	15.1	14.4	15.3	14.6
P9	Transportation and Utilities	5.8	5.5	5.4	4.9	5.0	5.1	5.1
P9	Information	2.2	2.3	2.3	1.7	2.2	2.2	2.2
P9	Financial Activities	8.4	7.7	6.9	7.4	7.2	6.9	7.3
P9	Professional and Business Services	8.3	8.6	8.6	8.6	7.9	9.0	8.5
P9	Education and Health Services	20.6	21.2	23.5	24.1	23.2	22.9	22.7
P9	Leisure and Hospitality	7.5	8.1	7.4	7.0	7.4	6.9	7.2
P9	Other Services	3.6	3.8	3.6	3.7	3.8	4.1	4.1
P9	Public Administration	4.2	4.0	4.2	4.3	4.0	3.4	3.1
P9	Agriculture and Related	4.7	4.7	4.2	4.4	5.4	5.0	5.2
P10	Management, Business, and Financial Operations	16.9	16.7	15.4	16.5	17.2	17.0	17.5
P10	Professional and Related Occupations	19.8	20.2	21.5	22.1	20.5	20.7	20.5
P10	Service	14.3	15.6	15.6	14.9	16.0	15.5	15.1
P10	Sales and Related Occupations	11.9	11.1	10.9	10.8	10.3	9.9	10.6
P10	Office and Administrative Support	14.3	12.6	13.2	12.8	12.8	12.8	11.9
P10	Farming, Fishing, and Forestry	1.3	1.1	1.1	1.2	1.6	1.3	1.5
P10	Construction and Extraction	5.0	5.7	4.7	5.0	5.4	4.8	4.6
P10	Installation, Maintenance, and Repair	3.0	3.0	3.4	3.4	2.9	3.0	3.1
P10	Production	7.3	7.6	8.0	8.2	8.0	8.8	9.2
P10	Transportation and Material Moving	6.2	6.2	6.1	5.1	5.3	6.3	6.1

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Indicator	Indicator Name	2007	2008	2009	2010	2011	2012	2013
1.1	Estimated Annual Total Number of Work-Related Injuries and Illnesses	31,900	28,700	25,700	25,700	23,800	24,300	24,700
1.2	Estimated Annual Total Work-Related Injuries and Illness Incidence Rate per 100,000 FTEs	5,000	4,400	4,100	4,200	3,900	3,900	3,800
1.3	Estimated Annual Total Number of Cases Involving Days Away From Work	8,700	7,900	7,100	7,400	6,700	6,800	6,700
1.4	Estimated Annual Total Incidence Rate for Cases Involving Days Away From Work	1,300	1,200	1,100	1,200	1,100	1,100	1,000
1.5	Estimated Annual Total Number of Cases Involving More Than 10 Days Away From Work	3,870	3,310	2,790	3,240	3,010	2,520	2,830
2.1	Annual Number of Work-Related Hospitalizations	710	669	583	698	775	600	694
2.2	Annual Crude Rate of Hospitalization	74.4	69.2	62.2	75.1	80.5	61.0	70.2
3.1	Annual Number of Work-Related Fatal Injuries	63	53	57	54	39	48	39
3.2	Annual crude fatality rate per 100,000 FTEs	6.8	5.6	6.5	6.1	4.3	5.0	4.1
4.1	Estimated Annual Number of Amputations Involving Days Away from Work	60	40	30	150	40	40	40
4.2	Estimated Annual Incidence Rate of Amputations Involving Days Away from Work per 100,000 FTEs	9	6	5	24	7	6.0	6.0
5.1	Annual Number of Amputations filed with State Workers' Compensation System	59	52	45	50	48	40	45
5.2	Annual Incidence Rate of Amputations filed with State Workers' Compensation System	6.5	5.8	5.1	5.7	5.5	4.5	5.0
6.1	Annual number of work-related burn hospitalizations	22	34	8	14	21	18	21
6.2	Annual rate of work-related burn hospitalizations	2.3	3.5	0.9	1.5	2.2	1.8	2.1
7.1	Estimated annual number of all musculoskeletal disorders	2,510	2,270	2,140	2,330	2,120	2,360	2,330
7.2	Estimated annual incidence rate of all musculoskeletal disorders	392	350	340	377	343	378	364
7.3	Estimated annual number of MSDs of the neck, shoulder & upper extremities	770	820	730	870	700	760	860
7.4	Estimated annual incidence rate of disorders of neck, shoulder, and upper extremities	121	125	116	140	113	122	134
7.5	Estimated annual number of carpal tunnel syndrome cases	140	120	90	130	140	100	170
7.6	Estimated annual incidence rate of carpal tunnel syndrome cases	22	19	14	21	23	16	26
7.7	Estimated annual number of musculoskeletal disorders of the back	1,160	960	950	950	830	920	860
7.8	Estimated annual incidence rate of musculoskeletal disorders of the back	180	147	151	154	134	147	133
8.1	Annual number of carpal tunnel syndrome cases filed with State WC	155	121	92	104	83	61	82
8.2	Annual incidence rate of carpal tunnel syndrome cases filed with State WC	17.2	13.5	10.5	12.0	9.5	6.8	9.1
9.1.1	Annual number of total pneumoconiosis hospital discharges	40	62	46	57	43	51	36
9.1.2	Annual rate of total pneumoconiosis hospital discharges	28.6	44.0	32.4	39.4	29.5	34.8	24.4
9.1.3	Annual, age-standardized, rate of total pneumoconiosis hospitalizations	28.6	44.0	32.4	35.4	27.0	32.1	21.3
9.2.1	Annual number of coal workers' pneumoconiosis hospital discharges	10	6	5	5	3	4	6
9.2.2	Annual rate of coal workers' pneumoconiosis hospital discharges	7.1	4.3	3.5	3.5	2.1	2.7	4.1
9.2.3	Annual, age-standardized, rate of coal workers' pneumoconiosis hospital discharges	7.1	4.3	3.5	3.2	1.8	2.4	3.8
9.3.1	Annual number of asbestosis hospital discharges	25	42	40	50	37	38	26
9.3.2	Annual rate of asbestosis hospital discharges	17.9	29.8	28.2	34.6	25.6	25.9	17.6

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Indicator	Indicator Name	2007	2008	2009	2010	2011	2012	2013
9.3.3	Annual, age-standardized, rate of asbestosis hospital discharges	17.9	29.8	28.2	30.9	23.1	24.2	15.1
9.4.1	Annual number of silicosis hospital discharges	5	14	1	1	1	8	3
9.4.2	Annual rate of silicosis hospital discharges	3.6	9.9	0.7	0.7	0.7	5.5	2.0
9.4.3	Annual, age-standardized, rate of silicosis hospital discharges	3.6	9.9	0.7	0.7	0.7	5.0	1.7
9.5.1	Annual number of other and unspecified pneumoconiosis hospital discharges	0	0	0	1	2	1	1
9.5.2	Annual rate of other and unspecified pneumoconiosis hospital discharges	0.0	0.0	0.0	0.7	1.4	0.7	0.7
9.5.3	Annual, age-standardized, rate of other and unspecified pneumoconiosis hospital discharges	0.0	0.0	0.0	0.5	1.3	0.5	0.7
10.1.1	Annual number of total pneumoconiosis deaths	5	7	8	3	5	7	2
10.1.2	Annual total pneumoconiosis death rate (per million residents)	3.6	5.0	5.6	2.1	3.4	4.8	1.4
10.1.3	Annual age-standardized total pneumoconiosis death rate	3.6	5.0	5.6	1.9	3.2	4.5	1.1
10.2.1	Annual number of coal workers' pneumoconiosis deaths	0	0	1	0	0	0	0
10.2.2	Annual coal workers' pneumoconiosis death rate (deaths per million residents)	0.0	0.0	0.7	0.0	0.0	0.0	0.0
10.2.3	Annual age-standardized rate of coal workers' pneumoconiosis deaths	0.0	0.0	0.7	0.0	0.0	0.0	0.0
10.3.1	Annual number of asbestosis deaths	5	6	5	2	4	7	2
10.3.2	Annual asbestosis death rate (deaths per million residents)	3.6	4.3	3.5	1.4	2.7	4.8	1.4
10.3.3	Annual age-standardized asbestosis death rate	3.6	4.3	3.5	1.4	2.5	4.5	1.1
10.4.1	Annual number of silicosis deaths	0	1	2	1	1	0	0
10.4.2	Annual silicosis death rate (deaths per million residents)	0.0	0.7	1.4	0.7	0.7	0.0	0.0
10.4.3	Annual, age-standardized silicosis death rate	0.0	0.7	1.4	0.5	0.7	0.0	0.0
10.5.1	Annual number of other and unspecified pneumoconiosis deaths	0	0	0	0	0	0	0
10.5.2	Annual other and unspecified pneumoconiosis death rate (deaths per million residents)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.5.3	Annual, age-standardized other and unspecified pneumoconiosis death rate	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.1	Annual number of reported work-related pesticide poisoning cases	45	37	46	40	34	46	39
11.2	Annual incidence rate of reported work-related pesticide poisoning cases per 100,000 employed persons age 16 years or older	4.7	3.8	4.9	4.3	3.5	4.7	3.9
12.1	Annual number of incident mesothelioma cases	21	10	22	19	12	21	22
12.2	Annual mesothelioma incidence rate per million residents				13.1	8.2	14.3	14.9
12.3	Annual, age-standardized mesothelioma incidence rate per million residents	14.5	7.1	15.5	12.0	7.4	12.9	13.2
13.1.1	Annual number of residents with elevated blood lead levels ( $\geq 10$ mcg/dL)	184	204	148	163	141	168	195
13.1.2	Annual prevalence rate per 100,000 employed persons ( $\geq 10$ mcg/dL)	19.3	21.1	15.8	17.5	14.6	17.1	19.7
13.1.3	Annual number of incident cases ( $\geq 10$ mcg/dL)	n/a	98	61	81	65	96	87
13.1.4	Annual incidence rate per 100,000 employed persons ( $\geq 10$ mcg/dL)	n/a	10.1	6.5	8.7	6.7	9.8	8.8
13.2.1	Annual number of residents with elevated blood lead levels ( $\geq 25$ mcg/dL)	51	48	48	47	39	51	31
13.2.2	Annual prevalence rate per 100,000 employed persons ( $\geq 25$ mcg/dL)	5.3	5.0	5.1	5.1	4.0	5.2	3.1
13.2.3	Annual number of incident cases ( $\geq 25$ mcg/dL)	n/a	14	20	17	11	23	5
13.2.4	Annual incidence rate per 100,000 employed persons ( $\geq 25$ mcg/dL)	n/a	1.4	2.1	1.8	1.1	2.3	0.5
13.3.1	Annual number of residents with blood lead levels ( $\geq 40$ mcg/dL)	7	12	9	7	5	5	2
13.3.2	Annual prevalence rate per 100,000 employed persons ( $\geq 40$ mcg/dL)	0.7	1.2	1.0	0.8	0.5	0.5	0.2
13.3.3	Annual number of incident cases ( $\geq 40$ mcg/dL)	n/a	4	7	2	2	3	0

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Indicator	Indicator Name	2007	2008	2009	2010	2011	2012	2013
13.3.4	Annual incidence rate per 100,000 employed persons ( $\geq 40$ mcg/dL)	n/a	0.4	0.7	0.2	0.2	0.3	0.0
14.1	Number of employed persons in high morbidity risk NAICS industries	39,276	80,225	81,767	77,809	83,973	81,528	72,691
14.2	Percentage of employed persons in high morbidity risk NAICS industries	4.9	10.0	10.5	10.1	10.5	10.0	8.8
15.1	Average number of employed persons in high morbidity risk, census occupations	98,956	117,880	102,494	100,051	102,817	119,078	106,949
15.2	Percentage of employed persons in high morbidity risk, census occupations	10.3	17.1	15.3	15.2	15.2	16.7	14.7
16.1	Average number of employed persons in high mortality risk industries	145,411	163,589	141,610	147,238	163,013	165,414	169,243
16.2	Percentage of employed persons in high mortality risk industries	15.2	19.9	18.0	19.1	20.5	19.8	20.0
16.3	Number of employed persons in high mortality risk occupations	113,440	122,892	113,730	109,809	125,364	132,106	117,366
16.4	Percentage of employed persons in high mortality risk occupations	11.8	15.0	14.4	14.3	15.7	15.8	13.8
17.1	Rate of board-certified occupational physicians per 100,000 employees	0.9	0.8	0.9	1.0	0.0	0.9	n/a
17.2	Rate of ACOEM members per 100,000 employees	1.5	1.4	1.2	1.2	0.0	1.0	0.9
17.3	Rate of board-certified occupational health registered nurses per 100,000 employees	5.0	5.1	5.3	5.3	0.0	0.0	4.4
17.4	Rate of members of the AAOHN per 100,000 employees	9.7	9.0	8.4	0.00	0.00	5.3	n/a
17.5	Rate of board-certified industrial hygienists per 100,000 employees	2.2	2.1	2.3	2.4	0.0	1.4	1.8
17.6	Rate of AIHA members per 100,000 employees	2.7	2.9	3.1	3.0	0.0	3.1	2.2
17.7	Rate of board certified safety health professionals per 100,000 employees	4.8	4.9	5.2	5.5	0.0	5.3	5.8
17.8	Rate of ASSE membership per 100,000 employees	16.7	16.1	15.8	16.3	0.0	17.3	17.2
18.1	Annual number of establishments inspected by OSHA	349	401	486	530	548	462	513
18.2	Total Number of Establishments in the State (excluding mines and farms)	54,557	55,338	55,408	55,339	55,776	62,183	64,456
18.3	Estimated percentage of all establishments under OSHA jurisdiction inspected by OSHA	0.64	0.72	0.88	0.96	0.98	0.74	0.80
18.4	Annual number of employees whose work areas were inspected by OSHA	29,498	20,073	19,323	29,964	31,519	21,462	28,776
18.5	Total Number of OSHA-Covered Employees in the State	767998	773,065	748901	743748	749119	767742	779525
18.6	Estimated percentage of employees under OSHA jurisdiction whose work areas were inspected	3.8	2.6	2.6	4.0	4.21	2.8	3.7
19.1	Total amount of workers' compensation benefits paid (in millions)	291	345	304	313	321	312	305
19.2	Average amount of workers' compensation benefits paid/ covered worker	323	384	347	360	368	350	337
20.1	Annual number of work-related surgical low back disorder hospitalizations for persons age 16 years or older	134	116	90	87	58	50	36
20.2	Annual crude rate of hospitalizations for low back surgery per 100,000 employed persons age 16 years or older	14.0	12.0	9.6	9.4	6.0	5.1	3.6
20.3	Annual number of work-related low back disorder hospitalizations for persons age 16 years or older	172	139	117	115	81	72	65
20.4	Annual crude rate of hospitalization for work-related low back disorder per 100,000 employed persons age 16 years or older	18.0	14.4	12.5	12.4	8.4	7.3	6.6
21.1.1	Weighted estimate of the number of ever-employed adults with current asthma who report that their asthma was caused or made worse by exposures at work - Landline only	10189	3784	43656	42079	n/a	n/a	n/a

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Indicator	Indicator Name	2007	2008	2009	2010	2011	2012	2013
21.1.2	Weighted estimate of the number of ever-employed adults with current asthma who report that their asthma was caused or made worse by exposures at work - Landline and cellphone	n/a	n/a	n/a	n/a	51729	58523	42036
21.2.1	Estimated proportion of ever-employed adults with current asthma who report that their asthma was caused or made worse by exposures at work - Landline only	20.6	11.4	43.9	41.6	n/a	n/a	n/a
21.2.2	Estimated proportion of ever-employed adults with current asthma who report that their asthma was caused or made worse by exposures at work - Landline and cellphone	n/a	n/a	n/a	n/a	52.0	58.2	43.3
22.1	Annual number of work-related inpatient hospitalizations for severe traumatic injury for persons age 16 years or older	99	82	67	102	134	114	143
22.2	Annual crude rate of work-related inpatient hospitalizations for severe traumatic injury per 100,000 employed persons age 16 years or older	10.4	8.5	7.2	11.0	13.9	11.6	14.5

\*NOTE: OHI data presented in this report are current data known at the time of publication, and data may be revised by Nebraska DHHS or other external data providers.

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Appendix B. Lead Poisoning Investigation Form.

Lead Poisoning Investigation (Adult v2)

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Patient Information

General Information

\* Information As of Date:  
Comments:

Name Information

Name Information As Of Date:  
First Name:  
Middle Name:  
Last Name:  
Suffix:

Other Personal Details

Other Personal Details As Of Date:  
Date of Birth:  
Reported Age:  
Reported Age Units:  
Current Sex:

Reporting Address for Case Counting

Address Information As Of Date:  
Street Address 1:  
Street Address 2:  
City:  
State:  
Zip:  
County:  
Country:

Telephone Information

Telephone Information As Of Date:  
Home Phone:  
Work Phone:  
Ext.:  
Cell Phone:  
Email:

Ethnicity and Race Information

Ethnicity Information As Of Date:  
Ethnicity:  
Race Information As Of Date:  
Race: American Indian or Alaska Native  
Asian  
Black or African American  
Native Hawaiian or Other Pacific Islander  
White  
Unknown

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Investigation Information

Investigation Details

\* Jurisdiction:  
\* Program Area:  
Investigation Start Date:  
\* Investigation Status:  
\* Shared Indicator:  
State Case ID:

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### Investigator

Investigator: - OR -  
Investigator Selected:  
Date Assigned to Investigation:

### Case Status

\* Case Status:  
MMWR Week:  
MMWR Year:

### Case Notes

Case Notes and Comments:

### Case Information

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#### Lead Epidemiology

Is the patient pregnant?:

---

#### General Comments

General Comments:

### Resources

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#### Resources

CSTE Case Definition: An adult blood lead level that should be maintained under surveillance is defined as an adult ( $\geq 16$  years) with a venous (or comparable) blood lead concentration  $\geq 10$  mcg/dL of whole blood. See Link Below  
CDC Case Definition for Lead Poisoning  
Nebraska DHHS Adult Lead Poisoning Website  
NIOSH Adult Blood Lead Epidemiology & Surveillance Website

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### Case Info

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#### Employer Information

\* Occupational lead exposures suspected?:

Reason for lead test:

Employment Status:

Select employer:

If not in employer list above, enter employer info below.

Employer Name:

Work Address:

Work City:

Work State:

Work Zip:

#### Industry

Industry (example: Auto Repair):

#### Occupation

Occupation or Job Title (example: Mechanic):

#### Coding Tools

Coding to be completed by DHHS

Industry Code (2002 NAICS):

Occupation Code (2002 CQC):

Tools for Coding Industry and Occupation:

NAICS Searchable Website for Coding Industry

U.S. Census Bureau: North American Industry Classification System

NIOSH Industry and Occupation Computerized Coding System ([NIOCCS](#))

#### Occupational Risk Factors

When at work does the person?

Have a place to eat away from work area?:

Change into and wear work clothes?:

Have employer wash work clothes?:

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Have shower facilities?:  
Wash hands before eating?:  
Wear a respirator?:  
Smoke?:

### Risk Factors

#### Exposure Information

\* Non-occupational lead exposures suspected?:  
Lead Exposure Comments:

#### Hobbies

Does patient have or participate in any of the following hobbies?  
Firing range or target shooting?:  
Renovation, remodelling, or repair work?:  
Automotive Repair?:  
Jewelry or Crafts?:  
Hunting or Fishing?:  
Make or Cast Bullets?:  
Make or Cast Fishing Sinkers?:  
Furniture Refinishing?:

#### Non-Occupational Risk Factors

Does patient or another in house use any traditional or folk medicines?:  
Examples include: Greta, Azarcon, Alarcon, Ghasard, Ba-baw-san, Daw Tway, Ayurvedic medications  
Live in or regularly visit a home built before 1978?:  
Peeling or chipping paint (inside or outside) in home or regularly visited place?:  
Recent or ongoing renovation or remodeling work in home built before 1978?:

### Public Health Interventions

#### DHHS follow-up activities

DHHS lead poisoning follow-up activities: (Use Ctrl to select more than one)  
Selected Values:

Date of DHHS follow-up:

To add additional case notes, letters, forms, or other documents, attach the files on the Supplemental Information tab.

#### Local health department follow-up activities

Local health department lead poisoning follow-up activities: (Use Ctrl to select more than one)  
Selected Values:

Date of LHD follow-up:

### Contact Records

#### Contacts Named By Patient

The following contacts were named within investigation:

Date Named	Contact Record ID	Name	Priority	Disposition	Investigation ID
Nothing found to display.					

#### Patient Named By Contacts

The following contacts named within their investigation and have been associated to this investigation:

Date Named	Contact Record ID	Named By	Priority	Disposition	Investigation ID
Nothing found to display.					

### Associations

#### Associated Lab Reports

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#### Appendix C. Summary of Priority Projects Survey Results (In Ranked Order)

1. Workers Compensation Data: Studying the workers' compensation data for trends in reported injuries/illnesses
2. Implementing prevention: Determine mechanisms for preventing work-related injuries and illnesses without alienating employees and/or employers.
3. Engaging local health departments: Find a way to work with local health departments (LHDs) to enhance surveillance activities. Specific systems will be developed for lead and pesticide poisoning. However, we also hope to develop relationships with LHDs such that if there are questions/concerns about work-related safety and health issues they can contact us for help and information.
4. Increasing occupational safety and health capacity in Nebraska: Increase the number of OSH professionals here by working with the UNMC College of Public Health to give students experience in the field and pursue careers in OSH.
5. Syndromic Surveillance: Include fields for industry and occupation in the syndromic surveillance data so that we have near real-time access to injuries and illnesses related to an exposure at work.
6. Other poisonings: Use poison center data to conduct surveillance of all occupational poisonings.
7. At risk populations: Study injuries and illnesses among those industries and occupations that are "high-risk" (i.e.: meatpacking workers, truck drivers, health care workers, etc.)
8. Expanded HDD analysis: Study the emergency data for similar indicators/trends as the OHIs for inpatient data, look at other codes for work-relatedness for both inpatient and emergency data
9. OSHA initiatives: Develop policies for making referrals, data sharing, and addressing hot topics/emerging issues.
10. Geographic differences in occ injury/illness: Identify particular counties or local health department jurisdictions where there are increased rates of occupational injury/illness.
11. Death certificate analysis: Examine all deaths for cause of death by industry and occupation, compare death certificates to CFOI and OSHA data, etc
12. Well workplace issues: Work with organizations to capture information on work-related injuries and illnesses among member companies. We also hope to study the correlation between certain behaviors (i.e.: diet and exercise) and work-related injuries and illnesses. Another possible project would be to use workers' compensation data for members of wellness plans and compare injury/illness rates to non-member companies.
13. Ag injuries/illnesses: Goal is to determine mechanisms for extracting data on injuries/illnesses among farmers/farm workers from existing data sources and obtaining data from new sources.
14. Trauma registry: Examine cases in our trauma registry for work-relatedness and compare those cases to information from other data sources
15. EMS data: Access the EMS data to examine the number of ambulance runs that are work-related
16. Motor vehicle accidents: Study workers' compensation data for motor vehicle-related claims and to compare our Crash Outcome Data Evaluation System (CODES) data with the workers' compensation data.
17. Disabilities from occupational injury/illness: Assess the contribution of occupational injury/illness to disability.
18. Cancer registry: To examine cancer cases by type of cancer by industry.
19. Health disparities: Study data sources for information on populations with disparities (and examine work-related issues for minorities
20. Work-related asthma: Establish data sources on work-related asthma for Nebraska-specific rates, particularly for adult cases. Determine which organizations in Nebraska are working on asthma-related issue

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#### Appendix D. Description of surveillance data source: Nebraska Workers' Compensation Court Claims

System/Database Description	Nebraska Workers' Compensation Court (WCC) Claims
Organization responsible	Nebraska Workers' Compensation Court (NWCC)
Purpose	NWCC collects and manages claims data under the Nebraska Workers' Compensation Chapter 48, Article 1 of the Revised Statutes of Nebraska.
Type of surveillance data collected	Fatal and non-fatal injuries and illnesses
Population base	Population employed by employers in Nebraska
Data collection period	First data collected: 1913 Data available to NOSHP <sup>[a]</sup> : 2000 to present
Inclusion & Exclusion Criteria	<u>Included:</u> Employees of state and local government, private industry, charitable organizations, part-time employees, and minors in the state of Nebraska. <u>Excluded:</u> Federal employees, railroad employees, volunteers, independent contractors. Other groups excluded from workers' compensation benefits, unless they elect to be covered are-household domestic servants, some employees of agricultural operations, self-employed, sole proprietors, partners, limited liability company, and some executive officers.
Sampling	Not applicable.
Data collection method	First report of injury (FROI) is filed within 10 days after the employer or insurer has been given notice of or has knowledge of the injury. Reports are filed by insurers, risk management pools, and self-insured employers using an Electronic Data Interchange (EDI). NWCC also accepts FROIs which involve lost work time, medical only, first aid or any other reported occupational injury or illness per Rule 29 of the rules and procedures and statutes 48-144, 48-144.01 of Nebraska Workers' Compensation Act.
Case definitions	A claim from a reportable injury or diagnosed occupational disease which results in death, or time away from work or termination of employment, or loss of consciousness, or medical treatment other than first aid. An occupational injury or illness resulting in 7 or more lost workdays is considered a lost work time injury.
Codes, classifications and standards, used if any	<u>Industry/Occupation codes:</u> Industry is not coded, but employers are asked to submit the 6-digit NAICS code for their business on the First Report of Injury. Occupation is not coded. <u>Diagnosis &amp; other codes:</u> Injury variables are coded according to the Workers' Compensation Insurance Organizations (WCIO) coding scheme for work-related injuries and illnesses.
Information collected	Name; address; date of birth; sex; no race or ethnicity information; employer name and address; North American Industry Classification (NAICS) code; county of where injury occurred; injury information- injury type; body part affected; source of injury; nature of injury; a narrative description of how the incident occurred; and the initial medical treatment.
Data management and archiving	Claims administrator sends file of claims to NWCC using secure internet File Transfer Protocol or flat files and ANSI ASC X12 data transmissions. NWCC staff process the electronic reports and codes, and enters data from paper reports. NWCC sends acknowledgement report to claims administrator that contains assigned agency claim number, any errors in data elements within each transaction, and/or any rejected transmissions.
Data analysis	Summary statistics for number of injuries reported by gender, age at time of injury, part of body, cause of injury, nature of injury, industry, payment by benefit type and payments by injury are calculated annually.
Data sharing and dissemination	<u>Data sharing:</u> Aggregate data: available on WCC website as annual statistical reports. Case-level data: annual reports of all claims filed with a date of injury in the prior year; annual reports for claims resulting in lost work-time; and weekly electronic submission of all claims filed with a date of injury in the previous week. <u>Dissemination:</u> Annual statistical reports released for public use.
Occupational health indicator (OHI) use	OHI# 5: Amputations with lost work-time. OHI# 8: Carpal tunnel syndrome cases.